VTK Live™ User Guide

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Patents. Various technology in the VTK400 System is patented in the United States, including without limitation patent numbers 5,941,997, 5,978,876, 5,872,565. Other patents, in the United States and othercountries, are pending.

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VTK LIVE USER GUIDE
DOCUMENT OVERVIEW

CHAPTER 1

Chapter 1

Document Overview

This manual gives you an overview of what VTK Live is, and how to efficiently use it. It also shows what you see when you navigate through the VTK Live interface.

Within these pages are instructions on how to switch video, use transitions, digitize clips, set up a timeline, and set up a keyer. All of VTK Live's, buttons, panels, and functions are covered here as well.

This chapter contains the following:

- Introduction 4
- Conventions 5

Introduction

This manual gives you an overview of VTK Live. It explains buttons, panels, controls, and pop-up menu functions. It also includes tutorials and a Quick Start section to help you get started with VTK Live.

The following topics are covered in the tutorial:

- Setting Up A Chroma Key
- Setting Up And Performing Live Switching
- Performing A Sync Roll With The VTR Transport Panel
- Using Virtual Sets

Conventions

Before we get too far into the manual, let's take a moment to explain some of the conventions that appear within.

General Conventions

The following formats are used to identify special instructions or important points in this manual.

1. (numbered)	Indicates step-by-step instructions to follow.
Bold Type	Indicates words you should type, buttons you should click, names of menus or windows, and file path names.
Italic Type	Indicates emphasis of important points.

Mouse Conventions

VTK400 is designed for use with a two-button mouse. The following explains mouse commands used in this manual.

Click — Place the mouse pointer over an object. Press the *left* mouse button and immediately release.

Click-and-drag — Place the mouse pointer over an object. Press the *left* mouse button. While holding the button down, move the mouse around. This is used mainly to draw boxes over objects to select them.

Double-click — Place the mouse pointer over an object. Press the *left* mouse button twice quickly and immediately release.

Drag-and-drop — Place the mouse pointer over an object. Press the *left* mouse button and hold it down. Drag (move) the object anywhere on your screen. When you release the mouse button, the object is dropped where the mouse pointer is aimed.

Right-click — Place the mouse pointer over an object. Press the *right* mouse button and immediately release.

VTK LIVE USER GUIDE
QUICK START

CHAPTER 2

Chapter 2

Quick Start

Welcome to the VTK Live quick start. Before diving into the function of every button, panel, and pop-up menu in VTK Live, let's run through a general overview of some of the basic functions, as well as a look at some of the powerful video effects and transitions that only VTK400 can perform. To get a complete list of the function of every button, panel, and pop-up menu, skip ahead to the VTK Live Reference chapter.

When you finish the tours in this chapter, remember that there is a veritable cornucopia of other effects to play with in your VTK400 bins. Explore and have fun.

The following topics are covered in this chapter:

- Performing A Cut 11
- Performing A Dissolve 13
- Performing A Wipe 15
- Using Digital Video Effects 17
- Effect Properties Panel 19
- Creating A Timeline 23
- Digitizing Live Clips With Time Machine 29

The VTK Live Interface

Shown below is the VTK Live main interface.

Figure 2.1: The VTK Live Interface

The basic function of VTK Live is to provide a transition between video sources. Whether or not you are in a live or post-production environment, there are four basic transitions: cut, dissolve, wipe, and digital video effect. VTK400 provides many variations of all of these including, chroma keying, alpha keying, down stream keying of animations, and more.

Performing A Cut

Let's start with a cut, the simplest transition.

1. Find the following picon in the **Bins\Stills\Manmade**.

Figure 2.2: The First Still Picon

2. Double-click on the picon. This loads the still into one of VTK400's framestore channels, and you see it appear in the Preview (Figure 2.5) monitor.
3. Click on the **Cut** button located in the middle-left of the interface. (The keyboard shortcut for this is **Enter**.)

Figure 2.3: Cut Button

You see the image move to the Program monitor.

NOTE: The Program monitor displays what is going out over the air, while the Preview monitor displays an image source that is cued up.

4. Locate the following picon, also in the **Bins\Stills\Manmade**.

Figure 2.4: The Second Still Picon

5. Double-click on the picon. This loads it into the other still store channel, and you see it appear in the Preview monitor (Figure 2.5).

Figure 2.5: Picon in Preview Monitor

6. Click **Cut** again.

   VTK Live swaps the images in the Program and Preview monitors, and the second image is now broadcast.

NOTE: If you have one or more video sources connected to VTK400, feel free to use them instead of one or both stills.

Performing A Dissolve

You can create a dissolve between the two images. This mixes the two sources together, producing a smooth fade from one image to the other. To create a dissolve, do the following:

1. Click on the **Mix** button, above the **Cut** button (Figure 2.6).

Figure 2.6: Mix Button

You see the **Mix** button turn yellow.

2. Click on the **Auto** button, to the right of the **Cut** button. (The keyboard shortcut for this is the spacebar.)

Figure 2.7: Auto Button

You see the image in the Program monitor smoothly fade into the image in the Preview monitor.

You can vary the duration of the dissolve by setting the effect duration above the **Auto** button to a different number. The effect duration is the number of frames it takes the transition to occur. To change it, do the following:

1. Click on the **Mix** button.

You see the **Mix** button turn yellow.

2. Click on the number just above the **Auto** button, delete the existing number, and type in a new number. Or click in the box and drag up or down on the screen with your mouse. Try 60 for a two second dissolve NTSC, (50 for two second dissolve for PAL).

3. Click on **Auto** to see the framestore image dissolve at the interval you set.

Fade To Black

A useful basic function is fade to black. This is often used to fade to black before a transition to commercials occurs or at the end of a show or segment.

NOTE: When using the **Fade** button, you see the program fade to black on your external monitor only. The Preview and Program monitors in VTK Live will remain unchanged.

To perform a fade to black, do the following:

1. Click on the **Fade** button.

   You see the **Fade** button turn yellow, and the program on your external monitor fade to black. You do not see this on the Program monitor on the VTK Live interface.

2. Click the **Fade** button again to bring the program back to normal.

TIP: The default duration for this fade is 15 frames. To change it, select the number in the box just above the **Fade** button and type in a new number. Or click in the box and drag up or down on the screen with your mouse.

Performing A Wipe

VTK400 can also perform a large variety of wipes. For an example, locate the following picon in the **Bins\FX\Sampler bin**.

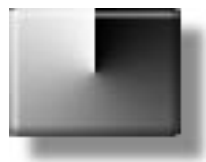

Figure 2.8: Picon For Wipe

1. Double-click on the picon.

   This loads it as the current effect, and you see it in the display above the **FX** (effects) label, above the **Mix** button (Figure 2.9).

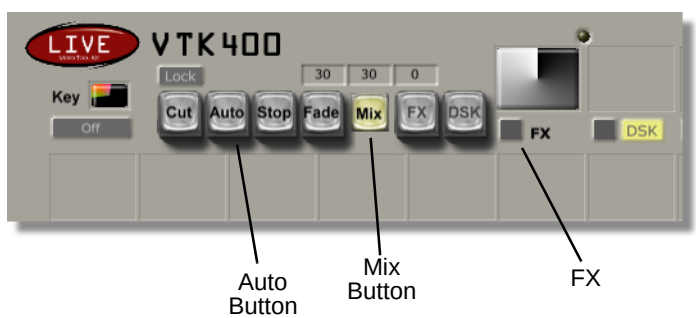

Figure 2.9: Loading the Current Effect

2. Click the **FX** button.

   You see the **FX** light up.

3. Click **Auto**.

   In the Program monitor, you see the image from the Preview monitor wiped on, replacing the image in the Program monitor.

Organic Wipes

VTK400 can do more than just standard wipes. It can also perform organic wipes. An organic wipe is a transitional effect that uses some kind of natural pattern to remove one video source and replace it with another.

To see an example of an organic wipe, locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.10: Picon For Organic Wipe

1. Double-click on the picon to load the effect as the current FX.

   You see it load into the display above the **FX** button (Figure 2.11).

Figure 2.11: Picon in FX Window

2. Click **Auto**.

   You see the image transition in the Program monitor.

Overlay Effects

VTK400 also lets you create graphics in VTK Paint or VTK Title and use them in effects you can run from VTK Live. To see an example, locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.12: Picon For Overlay Effect

1. Double-click on the picon. You see it load into the display above the **DSK** (downstream key) button (Figure 2.13).

v

Figure 2.13: Picon in DSK Window

2. Click **Auto**.

   You see the transition in the Program monitor.Using Digital Video Effects

VTK400 can perform another class of effects called digital video effects. Digital video effects change the shape of (or warp) the video picture, rather than just replacing one picture with another as in a wipe. To see an

example of a digital video effect, locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.14: Picon for Digital Video Effect

1. Double-click on the picon to load the effect.
2. Click **Auto**.

   You see the transition in the Program monitor.

Digital Video Effects With Graphics

Finally, let's combine a graphic with a digital video effect. Locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.15: Picon for Digital Video Effect with Graphics

1. Double-click on the picon to load the effect.
2. Click **Auto**.

   You see the transition in the Program monitor.

Effect Properties Panel

With the **Effect Properties** panel, VTK Live gives you the power to alter transition properties, such as softness and duration, allowing you to tailor transitions to your needs.

To get a feel for how the **Effect Properties** panel works, let's reverse the direction of the wipe, soften and add a blue border to its edges. From this panel you can also adjust other properties, such as duration.

1. Locate the following picon in the **Bins\FX\Sampler bin**.

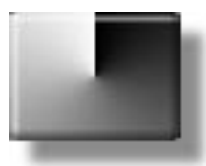

Figure 2.16: Picon For Wipe

2. Double-click on the picon to load it as the current FX.

   You see it load into the display above the **FX** button.

3. Right-click on the picon, in the display above the **FX** button, and choose **Properties** from the pop-up menu.

You see the **Effect Properties** panel appear in the upper left portion of the screen (Figure 2.17).

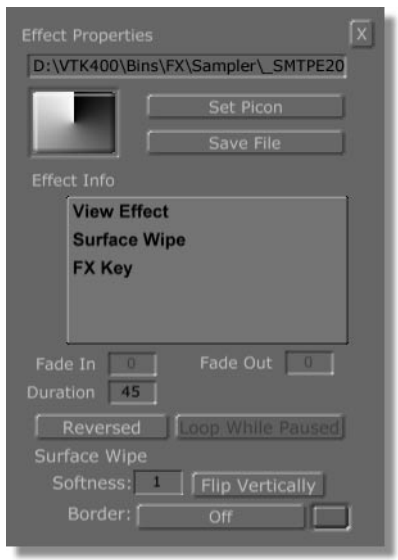

Figure 2.17: The Effect Properties Panel

4. Change the **Softness** value for this wipe by deleting the current value of **1** and replacing it with **60**.

   The default softness is **1**, which is a hard edge. A softness of **60** gives the wipe a nice soft edge.

5. Click the **Reversed** button.

   The default direction for this wipe is clockwise. When reversed, this effect wipes counter-clockwise.

Now we want to change the look of the wipe's border.

6. Click the **Border** button and select **Solid Color** from the pop-up menu.

7. Click the colored box next to the **Border** button to bring up the **Effect Border Color** panel.

You see the panel appear next to the Program and Preview monitors (Figure 2.18).

Figure 2.18: The Effect Border Color Panel

8. Click on any of the 16 color boxes in the lower right corner of this panel. These small color picons represent pre-mixed colors.

   You see this color appear in the box next to the **Border** button in the **Effect Properties** panel.

9. Close the **Effect Border Color** and **Effect Properties** panels.

10. Click **Auto**.

    You see the image transition in the Program monitor. Note the soft edges and color border as the transition wipes counter-clockwise.

11. Close this panel by clicking on the small "x" after you have chosen your color.

When this wipe is reloaded as the current effect, it reverts to its default settings. However, there are two ways to save the effect you created. One method creates a new file, while the other replaces the original file with your new properties. To save your effect as a new file, simply drag-and-

drop the picon from the display above the **FX** button into a bin. To replace your original effect, click the **Save Over Original File** button in the **Effect Properties** panel.

Creating A Timeline

Building a timeline in VTK Live works in conjunction with the sync roll editing feature of the **VTR Transport/Sync Roll** panel. Sync roll editing is a technique used when two or more cameras were set up at a live event, such as a wedding, and the feed from each camera was recorded to a different tape. The the tapes are then brought back, synchronized to the same point in time, and played back simultaneously while the editor switches the tapes as if they were on location switching cameras live.

With the **VTR Transport/Sync Roll** panel, you can create a timeline as you switch these tapes. That way, you can bring your timeline into VTK Edit and make minor adjustments or corrections.

To get a feel for how to create a timeline with VTK Live, let's build a simple timeline using two framestores and a wipe.

1. Click the **Panels** button, in the lower right corner of the VTK Live interface, and choose **VTR Transport** from the pop-up menu (Figure 2.19).

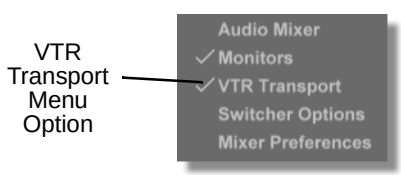

Figure 2.19: Selecting VTR Transport

You see the **VTR Transport/Sync Roll** panel (Figure 2.20) appear in the upper right corner of your screen.

Figure 2.20: The VTR Transport/Sync Roll Panel

2. Make room for your timeline by clicking and dragging the edge of the **FX Sampler** bin up, in the upper left corner of your screen, until there is an empty space under or above the bin.
3. Right-click in the empty space and choose **New Timeline Window** from the pop-up menu.

You see a timeline window fill the space (Figure 2.21).

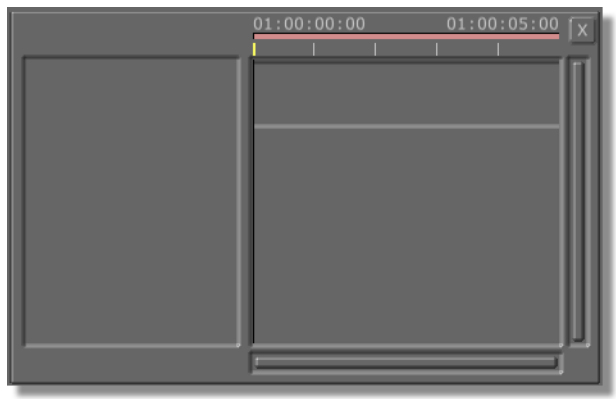

Figure 2.21: A Timeline Window

4. Load the White House framestore from the **Bins\Stills\Sampler** bin into the Preview bus by dragging-and-dropping its picon (Figure 2.22) onto the **FS2** button on the Preview bus.

Figure 2.22: White House Framestore Picon

You see the **FS2** button light up, indicating that the framestore is loaded into the Preview monitor.

Figure 2.23: FS2 Button on the Preview Bus

5. Load the American Flag framestore from the **Bins\Stills\Sampler** bin into the Program bus by dragging-and-dropping its picon (Figure 2.24) onto the **FS1** button on the Program bus.

Figure 2.24: American Flag Framestore Picon

You see the **FS1** button light up, indicating that the framestore is loaded into the Program monitor.

6. Load a wipe (Figure 2.25) from the **Bins\FX\Sampler** bin by double-clicking its picon.

Figure 2.25: Picon For Wipe

You see it load into the **FX** window above the **Mix**, **FX**, and **DSK** buttons.

7. Click the **Build Timeline** button in the **VTR Transport/Sync Roll** panel.

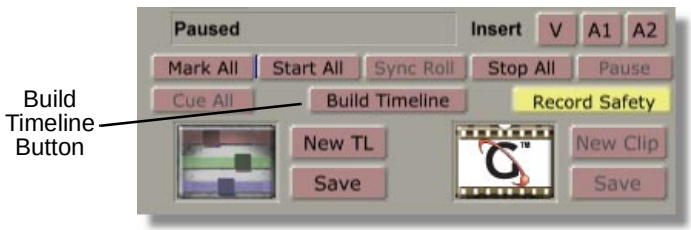

Figure 2.26: Build Timeline Button

You see the button turn yellow.

8. Click the **Sync Roll** button in the **VTR Transport/Sync Roll** panel.

   You see the button's letters turn gray.

9. Click the **Auto** button in VTK Live three times, allowing time for the wipe to complete its transition before each click.

   You see the framestore in the Program monitor transition into the framestore in the Preview monitor three times.

10. Click the **Stop All** button in the **VTR Transport/Sync Roll** panel.

11. You see the transitions and framestores you switched appear in the timeline window (Figure 2.27).

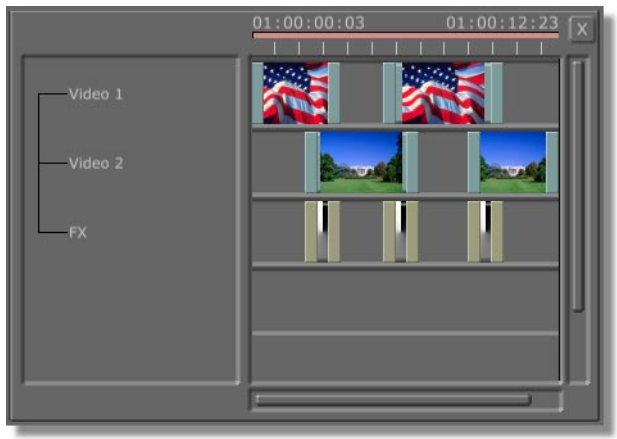

Figure 2.27: Timeline With Content

12. Save the timeline by dragging-and-dropping the timeline picon (Figure 2.27) from the **VTR Transport/Sync Roll** panel into the desired bin.

    You can also save your timeline by clicking the **Save** button in the **VTR Transport/Sync Roll** panel.

Figure 2.28: Timeline Picon

The timeline you created can be edited in VTK Edit or played back in VTK Live.

Play back a timeline in VTK Live by loading it into the FX window, above the **Mix**, **FX**, and **DSK** buttons. Do this by dragging-and-dropping it into the FX window from the bin where you saved it. Timelines loaded into the FX window are sent out “over the air” by clicking the **Auto** button.

Digitizing Live Clips With Time Machine

With the **VTR Transport/Sync Roll** panel and a Time Machine, live clips can be digitized from the VTK Live interface. This feature is effective if you want to create a digitized clip as you switch video or if you want to digitize from a tape that is not 422 controllable. These clips can be played back from VTK Live or dropped onto any timeline.

To learn the basics of digitizing live clips, let's digitize a clip as we transition between two framestores.

1. Load the framestore of a flag from the **Bins\Stills\Sampler** bin into the Preview bus by dragging-and-dropping its picon (Figure 2.29) onto the **FS2** button on the Preview bus.

Figure 2.29: Paint Brushes Framestore Picon

   You see the **FS2** button light up, indicating that the framestore is loaded into the Preview monitor.

2. Load the framestore of the White House from the **Stills Sampler** bin into the Program bus by dragging-and-dropping its picon (Figure 2.30) onto the **FS1** button on the Program bus.

Figure 2.30: White House Framestore Picon

   You see the **FS1** button light up, indicating that the framestore is loaded.

3. Click the **FS1** button on the Program bus to choose the clouds framestore as the program source.

   You see the clouds framestore in the Program monitor.

4. Load a wipe (Figure 2.31) from the **FX Sampler** bin by double-clicking its picon.

Figure 2.31: Picon For Wipe

   You see it load into the **FX** window above the **Mix**, **FX**, and **DSK** buttons.

5. Click the **Panels** button, in the lower right corner of the VTK Live interface, and choose **VTR Transport** from the pop-up menu.

You see the **VTR Transport/Sync Roll** panel (Figure 2.32) appear in the upper right corner of your screen.

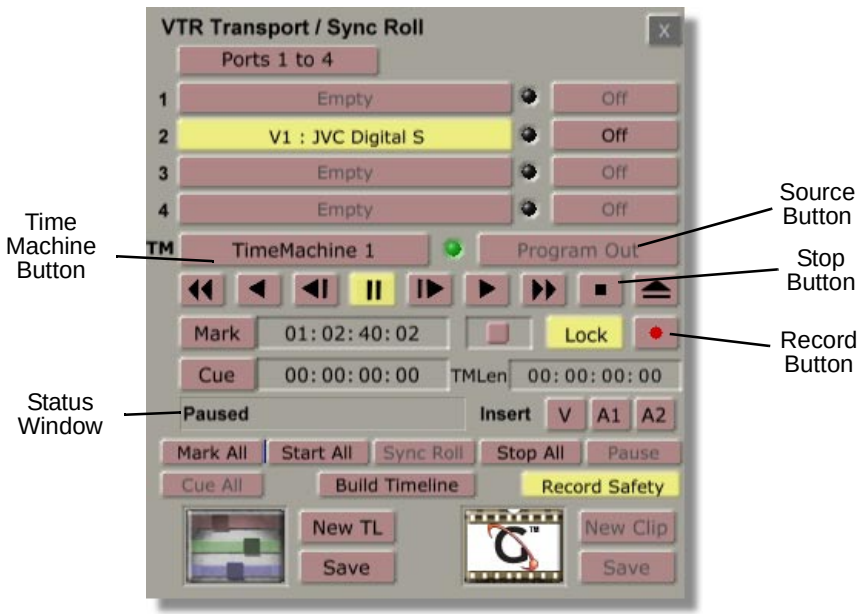

Figure 2.32: The VTR Transport/Sync Roll Panel

6. Click the **TimeMachine** button.

   You see the **TimeMachine** button turn yellow, indicating that Time Machine is active.

   You see the transport control buttons, except **Record**, turn gray. When digitizing live clips, you only have the option to record or stop recording.

   In the status window you see the words **Ready to record**.

7. Click on the **Source** button and choose **Program Out** from the pop-up menu (Figure 2.33).

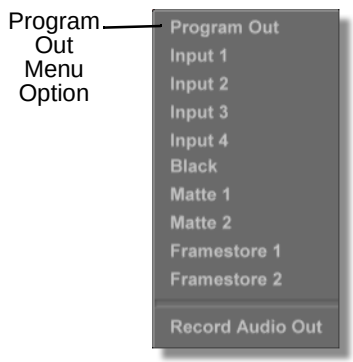

Figure 2.33: Time Machine Pop-Up Menu

This chooses **Program Out** as the source of the clip being digitized.

8. Click the **Record** button on the transport controls.

Figure 2.34: Stop Button

In the status window you see the word **Recording**.

With the **Record** button selected, Time Machine digitizes what is seen on the Program monitor.

9. Click the **Auto** button in VTK Live three times, allowing time for the wipe to complete its transition before each click.

You see the framestore in the Program monitor transition into the framestore in the Preview monitor three times.

10. Click the **Stop** button on the transport control.

In the status window you see the word **Stopped**.

You see the digitized clip picon with the flag on it (Figure 2.35) in the lower right corner of the **VTR Transport/Sync Roll** panel.

Figure 2.35: Digitized Clip Picon

The flag on the digitized clip picon represents the first frame of the clip.

NOTE: The picon for any digitized clip is actually a shortcut to the digitized clip saved on Time Machine's hard drives. This shortcut can be dragged to a timeline and edited as a normal clip. The name given to the picon shortcut is applied to the digitized clip on Time Machine's hard drives.

You now have a digitized clip, which can be played back in VTK Live or dropped into any timeline. Digitized clips are automatically saved to Time Machine's hard drives and by clicking **Save**, a shortcut to these clips is saved in the default bin set in the **Global Settings** panel.

Save the digitized clip's picon by dragging-and-dropping it from the **VTR Transport/Sync Roll** panel into the desired bin. You can also save your digitized clip's picon by clicking the **Save** button in the **VTR Transport/Sync Roll** panel. This saves the digitized clip's picon in the default bin set in the **Global Settings** panel.

VTK LIVE USER GUIDE REFERENCE

CHAPTER 3

Chapter 3

Reference

The functions of the following VTK Live controls are covered in this chapter:

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- Source Monitors 43
- Matte Color Panel 45
- Effect Controls 47
- Effect Properties Panel 53
- Keyer Controls 57
- Keyer Settings Panel 58
- Application and Additional Panel Buttons 65
- Audio Mixer 67
- VTR Transport/Sync Roll Panel 75
- Other VTK Live Controls 96

VTK Live Overview

The basic function of any switcher is to provide an easy way to switch between different video sources.

The following figures illustrates VTK Live's many function controls.

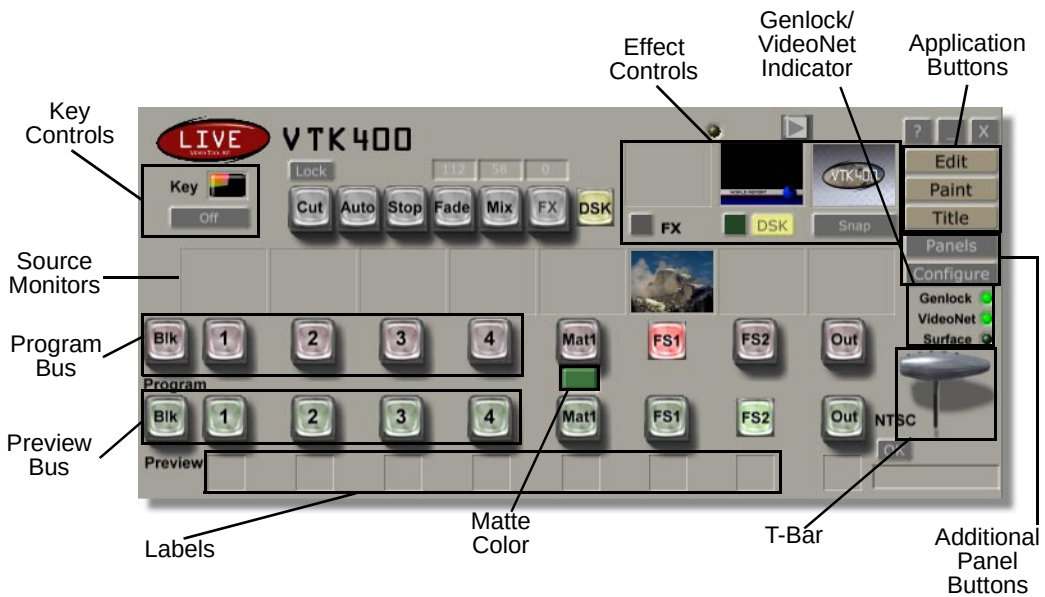


Figure 3.1: VTK Live's Function Controls

Video Busses

Each row of buttons is called a video bus (following figures). Each button represents a channel of video running through VTK400.

Figure 3.2: Video Busses in VTK Live

Following is a list of the functions of the busses:

Program — Represents what is actually going out "over the air." This is the most important bus in VTK Live, as whatever is selected here is what is actually broadcast or recorded. The Program bus must always have a button selected.

Preview — A secondary video bus used to preview video sources to decide which should go out on the air next. Most transitional video effects take the current Program video source and replace it with the Preview source. The Preview bus must always have a button selected.

The numbered buttons on the Program and Preview busses represent the video input slots on the back of the VTK400 hardware.

Figure 3.3: Blk (Black) button and Inputs 1-4 in VTK Live

The following list explains the input buttons and their functions:

Inputs 1-4

VTK400 Live: Inputs 1-4

On each bus, these buttons represent the different video inputs on VTK400. Each active button (that has an input module installed) lights up when the cursor passes over it. Left-clicking on any active button selects that input. Right-clicking on a button brings up a pop-up menu, from which you bring up the **Input Sources**, **Input Settings**, **Color Correction**, or **Pro Color Correction** panels Below each of the input buttons, there is a small box that can be used to label the input. Simply click in the area and type in the name of the input.

Blk (Black)

Causes the video bus to display black (7.5 IRE).

The four softbuttons (Figure 3.4) represent video signals internal to VTK400. Choose the function of each softbutton by right-clicking on one and selecting a function from the pop-up menu.

Figure 3.4: Softbuttons and Toggle Button

The following list explains these buttons and their functions:

Mat1, **Mat2** — Selects the matte color for that bus. A matte is a solid color screen. Matte color is shown by the **Matte Color** button located next to the input labels. Matte color can be set by right-clicking on any of the **Mat** buttons, or by clicking on the **Matte Color** button. Clicking the **Matte Color** button brings up the **Matte Color** panel (See "Matte Color Panel" on page 45 for more information about this panel).

TM1, **TM2**, **etc.** — Represents a digitized clip. These are where digitized clips are chosen as a video source. To load a digitized clip into a softbutton, simply double-click on a digitized clip's picon. The digitized clip loads into an available channel in the soft buttons, which is now labeled **TM1**. Once a cut is made, and the clip is on the Program monitor, the clip begins playing. Unload this clip from the softbutton by right-clicking on the softbutton and choosing **Unload Digitized** from the pop-up menu.

Loop — The **loop** button appears when a digitized clip is loaded into a softbutton. Clicking the **Loop** button loops the digitized clip when it's playing on the Program bus.

FS1, FS2, etc.

Represents framestores, or stills. These are where still images are chosen as a video source. To load a still into one of the framestores, simply double-click on it. Additional **FS** buttons can be created by right-clicking on a softbutton and choosing **Create Framestore**. The framestores that are manually created can be deleted by right-clicking on the framestore button and choosing **Unload Framestore** from the pop-up menu.

When additional **FS** buttons are created, it is necessary to drag-and-drop stills to load them into the **FS** buttons because double-clicking on a still loads it into a random **FS** button.

Out

Feeds the Program output back into itself, creating bizarre recursive feedback effects. These look especially good on dance shows or at parties. To really see this in action, set the Program bus to **Out** and run a digital warp effect.

Cue

Tells the Key bus to turn on a specific input when the next Cut is performed. To use this function, simply click the **Cue** button and then click the desired key source on the **Key** bus. The next time a cut is performed, the selected Key input is activated.

Toggle

Clicking on this button locks a key image to a background source for the purposes of transitions. That way, you can use a single keyboard command to toggle two sources (such as a camera and a background) between Program and Preview simultaneously.

Source Monitors

There are eight source monitors located above the video busses. The first four source monitors correspond to inputs 1-4. The remaining four source monitors correspond to whatever source is selected in the softbuttons.

Figure 3.5: Source Monitors

Right-clicking in a source monitor will display a context menu. You can enable a monitor by selecting **Enable Monitor**. Once the monitor is enabled, you may right-click again and select **Disable Monitor**.

Figure 3.6: Enabled Monitor

You may use the source monitors for chroma keying the source over a FrameStore background. To do so:

1. Drag and drop a FrameStore file onto the Source Monitor to specify a background for keying.

   (If the Source Monitor is not already in use, this will immediately enable chroma keying.)

2. Once a background has been selected, you can alternatively show the background source by checking on the **Show Background Source** menu item.

Figure 3.7: Background Source Selected

3. You can turn on and off chroma keying by checking on and off the **Key With Background Source** menu item.

NOTE: Enabling the Source Monitor(s) will use up resources and the frame rate for the Program and Preview monitors will decrease.

Matte Color Panel

With the **Matte Color** panel (Figure 3.8) you can select a color from a set of pre-mixed colors or mix your own color. This color is set as the matte color.

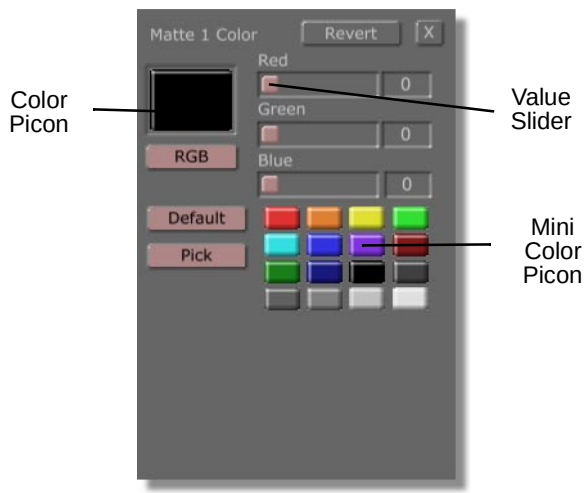


Figure 3.8: The Matte Color Panel

Bring up this panel by clicking the **Matte Color** button under a **Matte** softbutton (Figure 3.9). If this panel is brought up by clicking the **Mat1** button, it is labeled **Matte 1 Color**. If this panel is brought up by clicking the **Mat2** button, it is labeled **Matte 2 Color**.

Figure 3.9: The Matte Color Button

The following list explains how to use this panel:

Revert	Removes any changes made in this panel and resets it to its original color.
Color Picon	Shows the current color. As you edit the color, the picon changes to match the new color.
RGB/HSV	Sets the color format. Clicking this button brings up a pop-up menu with the options **RGB** or **HSV**. In RGB mode, you can mix a color using the three additive primary colors used to construct video images. They are red, green, and blue. In HSV mode you can adjust the three properties of color. They are hue, saturation, and value.
Red, **Green**, **Blue/Hue**, **Saturation**, **Value**	Clicking and dragging a slider changes the values of the color. If **RGB** was selected with the **RGB/HSV** button, the sliders adjust the red, green, and blue values. If **HSV** was selected, the sliders adjust the values for hue, saturation, and value. These values can also be adjusted by typing a new value in the boxes to the right of the sliders.
Mini Color Picons	A set of small color picons. These colors can be loaded as the Color picon by dragging-and-dropping them into the Color picon or by double-clicking on one. A Mini Color picon can be changed by clicking-and-dragging the Color picon onto it.
Default	Resets the mini color picons to the default colors.
Pick	Selects a color. To do this, click the **Pick** button and drag to any point on the screen. When the **Pick** button is clicked, the video in the Program and Preview monitors freezes, allowing you to pick a color from video. To select the color you have dragged over, release the mouse button. The new color loads as the Color picon, and its values are displayed in the color values.

Effect Controls

The Effect Controls (Figure 3.10) is the area of VTK Live where you can control how the video busses are mixed.

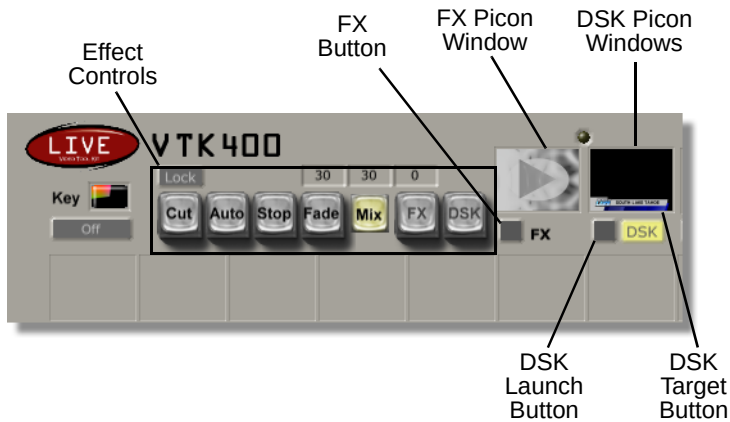


Figure 3.10: Window Picons and Effect Buttons

Following is a list of how these controls function:

FX Picon Window

Displays the picon for the transitional effect currently loaded. To load an effect from a bin, simply double-click its picon. While VTK400 is loading the effect, you see the effects picon being animated until the effect is completely loaded and ready to use. To use the effect instantly, click the **FX** button and the effect will run in the program window. The button under this picon lights up when an effect is running. More than one transition can be loaded in the **FX** picon. Right-clicking on this picon brings up a list of all effects loaded into the **FX** picon. It also gives a choice for **Effect Properties**, and a way to unload effects. Choosing **Effect Properties** from the pop-up menu brings up the **Effect Properties** panel (See "Effect Properties Panel" on page 53 for more information about this panel).

DSK Picon Window

Displays the picon for any downstream key effect loaded. The light under this picon lights up when a DSK effect is running. DSK effects include any type of graphic overlay, animation, or credit roll that doesn't involve a transition from one video source to the next. More than one transition can be loaded in the DSK picon. Right-clicking on this picon brings up a list of all effects loaded into the DSK picon. It also gives a choice for **Effect Properties**, and a way to unload effects (Figure 3.11).

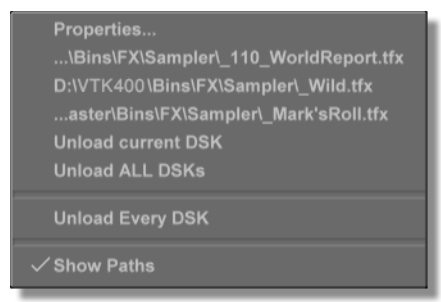


Figure 3.11: DSK Properties Menu

Properties—Choosing this brings up the **Effect Properties** panel (See "Effect Properties Panel" on page 53 for more information about this panel).

Unload current DSK—Unloads the current DSK in the window.

Unload ALL DSKs—Unloads all the loaded DSKs in a *particular* window.

Unload Every DSK—Unloads all the loaded DSKs in *all* the windows.

Show Paths—Shows the entire path (active when a check mark is present) where the effect is saved or just the effect name by selecting this option.

DSK Target Button — Clicking on this button will determine which card will be responsible for loading the effect.

DSK Launch Button — This button serves two functions. First, it represents the state of the effect similar to the **FX LED** button. When the button is green, it means that the effect is running. When the button is dark green, the effect is turned off. Secondly, it behaves just like the **Auto** button does. Clicking on the button toggles its state; if the effect is off (dark green), clicking the button launches the effect. Alternatively, clicking the button while running (green), turns off the effect.

Mix, FX, and DSK — These buttons are collectively called the **Effect Controls**. These buttons control what action is performed when the **Auto** button is pressed. When effects are loaded into the VTK400 VTK Live, the appropriate buttons automatically light up for the effect. If the **Mix** button is selected, clicking **Auto** performs a dissolve between program and preview video. If the **FX** button is selected, clicking **Auto** or the **FX** button performs whatever is loaded as the current FX. DSK effects and transitions can be run at the same time by turning both buttons on. If the **DSK** button is grayed out when a transitional effect is loaded, it means the transitional effect contains graphics that use the DSK channel. In this situation, the DSK cannot be used at the same time as the transitional effect. The keyboard command for **Mix** is the **Insert** key. The keyboard command for **FX** is the **Home** key. The keyboard command for **DSK** is the **Page Up** key.

Cut — Performs the most basic transitional effect. It flip-flops the Program and Preview busses. Whatever was on Preview is now on Program, and vice-versa. This is probably the most used button in any switcher. The keyboard shortcut is the **Enter** key. If the **Lock** button above the **Cut** button is selected, the **Auto** button performs a cut before it does the selected action on the effect controls.

Aux Mix, blank buttons

The blank buttons are reserved for added functionality in future versions of VTK400.

Auto

Generally speaking, triggers the current effect. More specifically, its behavior is dependent on which of the effect controls is selected:

If **Mix** is selected, **Auto** performs a simple dissolve.

If **FX** is selected, pressing **Auto** performs whatever transitional effect is loaded as the current **FX**.

If **DSK** has been selected, **Auto** brings up the image loaded as the current **DSK**.

Some effects pause or loop in the middle of the effect. If this is the case, click the **Auto** button again to end the effect. The keyboard shortcut for **Auto** is the space bar. The numerical window above the **Auto** button is the number of frames in the selected effect. If an effect has a modifiable length, it can be changed by simply clicking on the numerical display and entering a new value.

Fade

The master **Fade to black** button fades Program Out to black. This happens downstream of everything else inside of VTK400, so it leaves effects and graphics loaded but not showing. This gives an easy way to come back from a commercial break with an effect still running. The time it takes to fade to black can be adjusted by changing the number of frames listed in the **Fade** speed display above the **Fade** button. The keyboard command for the **Fade** button is the **Page Down** key.

Stop

Immediately stops any **DSK** or **FX**. The keyboard command for the **Stop** button is the **Escape** key.

T-Bar A graphic representation of the physical control on a switcher. By dragging this bar up or down, whatever effect or DSK is selected is controlled manually. The faster the T-bar is pulled, the faster the effect runs. The T-bar is especially useful for pausing midway through an effect.

Effect Properties Panel

With the **Effect Properties** panel (Figure 3.12), you can alter an effect's properties, such as softness and duration, allowing you to tailor effects to your needs.

Figure 3.12: The Effect Properties Panel

Bring this panel up by loading an effect into the FX or DSK picon window by double-clicking the effect. Once the effect is loaded, right-click on it and choose **Properties** from the pop-up menu. The panel appears in the upper left corner of the screen.

Some of the values in the **Effect Properties** panel applies specifically to transitions or DSK effects. Values and buttons are grayed out when they aren't applicable to the effect you are altering.

The following list explains how to use the **Effect Properties** panel:

Path Name	Displays the current path the effect. To enter a new path, type in the path of your choice and click on **Save File**. You'll notice that the **Save File** button switches to **Save Over Original File** as you type a new path.
Set Picon	Creates a new picon for the effect. The new picon is the image on the Program monitor when the **Set Picon** button is clicked.
Save Over Original File	Saves your effect, with its new properties, over the original effect. To load the effect with the new values, double-click on its picon in its bin.
Effect Info Box	Contains information about the effect, including effect type and transition information.
Fade In	Sets the amount of time (in frames) it takes for an effect to fade in when the **Auto** button is clicked. Set the **Fade In** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.
Fade Out	Sets the amount of time (in frames) it takes for an effect to fade out. Set the **Fade Out** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.
Duration	Sets how long the effect runs. Set the **Duration** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.
Reversed	Reverses the direction of an effect.

Softness — Adjusts the softness of an effect's edges. Set the **Softness** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.

Flip Vertically — Flips a transition vertically. For example, if a wipe transitioned from the top, clicking the **Flip Vertically** button would make it transition from the bottom. This option is grayed out for some effects.

Border — Clicking the **Border** button brings up a pop-up menu with these options: **Off**, **Solid Color**, **Graphics**, and **Auxiliary Source**.

Choosing **Off** gives the effect no border.

Choosing **Solid Color** adds a colored border to an effect. This color can be changed by clicking the color box next the **Border** button. This brings up the **Effect Border Color** panel (See "Effect Border Color Panel" on page 56.).

Choosing **Graphics** allows you to select a graphic as a border. Choosing **Auxiliary Source** allows you to choose a video source as the effect's border.

Effect Border Color Panel

With the **Effect Border Color** panel (Figure 3.13), you can select a color from a set of pre-mixed colors or mix your own color. This color is set as the border color.

Figure 3.13: The Effect Border Color Panel

NOTE: The **Border** button is grayed out for some effects, but it is available for all of the wipe effects.

Bring up this panel by clicking the color box next to the **Border** button in the **Effect Properties** panel.

The **Effect Border Color** panel buttons function the same as the **Matte Color** panel's buttons (See "Matte Color Panel" on page 45 for more information on the functions of these buttons).

Keyer Controls

With the **Keyer Controls** (Figure 3.14), you can tailor VTK400's versatile keyer to key out precisely what you want.

Figure 3.14: Keyer Controls

The top **Key** button is a representation of a color wheel displaying the color being keyed out. The colors not keyed out are shown as black in the top key button. Clicking this button brings up the **Keyer Settings** panel (See "Keyer Settings Panel" on page 58 for more information about this panel).

Clicking on the bottom **Keyer Controls** button, below the word **Key**, brings up a pop-up menu from which you can select a keyer mode. Choose between **Off**, **Normal**, **Mix**, **Add**, **Luma**, and **Ext Alpha** modes.

Following is a list of how each keyer mode functions:

Off	When selected, the keyer is off.
Normal	Overlays a video source on top of a key.
Mix	Performs color canceling before keying the foreground video.
Add	Performs color canceling, preserving shadows and highlights on the background video.
Luma	Uses luminance to key the foreground video.
Ext Alpha	Uses alpha from an external source to key the foreground video.

Keyer Settings Panel

The **Keyer Settings** panel allows you to select the type of keyer you want and to control what part of the signal is being keyed out. To access it, click on the **Configure** button in either the VTK400 VTK Live or the VTK400 VTK Edit, and select **Keyer Settings** from the pop-up menu. Clicking on the **Key Type** button allows you to select either a **Chroma** or **Luma keyer**, or **External Alpha** from a pop-up menu. The following section explains how to use the settings.

Chroma Keyer

A chroma keyer is a key that electronically cuts a specific color or range of colors out of a video image and inserts another video source in that hole. To set up a chroma key, on the **Keyer Settings** panel select **Chroma** as the **Key Type**. This brings up the **Chroma Keyer** panel (Figure 3.15).

Figure 3.15: Chroma Keyer Panel

Here's how to adjust the settings:

Color Picon — The colored square to the right of the **Key Type** button is the color picon. The picon represents a color wheel and displays the color that is keyed out. As the various values are adjusted, the picon automatically reflects the changes. To save a specific setting, drag-and-drop the picon into a bin. To recall the setting, drag-and-drop the picon back into the color picon square on this panel.

Manual/ Auto-set — Click on these buttons to select the manual or automatic color selection mode. Generally, the **Auto-set** mode is the fastest and easiest way to set up a key. The **Auto-set** mode uses an algorithm to determine the predominant hue in an image in the Preview video source. It selects the optimum shades to remove without affecting other colors in the image. You see this represented in the color picon as a small dot or starburst centering on a specific saturation of the selected hue. If the image has uneven lighting or an uneven background color, you may need to use the **Manual** mode and the **Hue** slider to select the colors to be removed. In **Manual** mode, you select a pie-shaped wedge of the color wheel. In other words, a range of saturations of the selected hue are keyed out.

Traditional/ Expanded — This feature is for luma keying. **Expanded** is the only option for chroma keying.

Hue — Used only in **Manual** mode, this slider selects the colors to be keyed out. The numbers to the right of the slider represent the 360 degrees of the color wheel. A value of 1 is pretty close to chroma key blue. Chroma key green is around 230.

Softness — Smooths the edges of the areas keyed out. Set this for a value that softens the edges of the keyed area without adversely affecting the edges of other parts of the image. Increasing this value too much makes the image transparent.

Width	Adjusts the range of color that is keyed out. If too many shades of a certain color are removed, lowering the width value decreases the number of shades keyed out.
Low Sat	Affects the neutral colors found in the center of the color wheel. It acts as a circle emanating from the center, limiting the keyer. The higher the value, the bigger the circle and the fewer low-saturation tones that are removed. Usually tinkered with to remove "sparklies" caused by uneven lighting in a live environment.
Invert	Reverses the settings to form a "mask" around the previously keyed areas, and the opposite of the values selected is keyed out.

Luma Keyer

A luma keyer is a key that electronically cuts a specific luminance value or range of luminance values out of a video image and inserts another video source in that hole. To set up a luma keyer, in the **Keyer Settings** panel select **Luma** as the **Key Type**. This brings up the **Luma Keyer** panel (Figure 3.16)

Figure 3.16: Luma Keyer Panel

The settings work the same as those in the **Chroma Keyer** Panel, except for the following differences:

Threshold Replaces the **Hue** setting on the chroma panel. Used only in manual mode, this slider adjusts the level of brightness to be keyed out. Brightness values range from 0 to 359.

Traditional In this mode, the VTK400 keyer works like a traditional keyer. You set a threshold value, and everything above or everything below (depending on whether you click the **Invert** button) this value is keyed out. The other option is **Expanded** mode.

Expanded In this mode, you can set a specific range of values to be keyed out, and all other values, both higher and lower, are retained. This enables you to set a mid-range of luminance values to be removed. Use the **Threshold** slider to select the approximate range to key out, then use the **Width** slider to fine-tune the size of that range (how wide a piece of the luminance spectrum is keyed out). The other option is **Traditional** mode.

External Alpha

The **External Alpha** option on the **Keyer Settings** panel is where you tell VTK400 which video input an external alpha channel is linked to. To set an external alpha channel, on the **Keyer Settings** panel select **External Alpha** as the **Key Type**. This brings up the **External Alpha** panel (Figure 3.17).

Figure 3.17: External Alpha Panel

To set an external alpha channel, do the following:

1. Click on a button under **Video Input.**

This brings up a pop-up menu (Figure 3.18).

Figure 3.18: External Alpha Pop-Up Menu

The selections on the pop-up menu vary according to what is loaded into your VTK400 system. For example, it lists installed input cards. In this case, input cards are installed in slots 1, 3, and 4 of the VTK400. You can also use mattes, framestores, black, or Program Out as your video source.

2. Select the appropriate video input source.
3. Click on the **Alpha Input** button next to the **Video Input** button.
4. From the pop-up menu, select the source you want to use as the alpha channel for the video input.

When you set the key to **External Alpha** in VTK Live, VTK400 automatically uses the designated source as an alpha channel for the video source you chose.

Application And Additional Panel Buttons

Click on any of the four **Application** Buttons (Figure 3.19) to close VTK Live and open the appropriate application.

To leave VTK Live open, hold down the **Shift** key while you click the application button. The **Panels** and **Configure** buttons bring up a variety of panels.

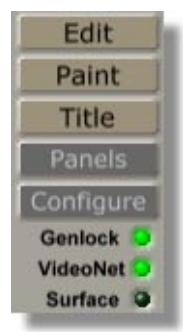


Figure 3.19: Application and Additional Panel Buttons

Following is a list of how these buttons and panels function:

VTK Edit, **VTK Paint**, **VTK Title**	Closes VTK Live and opens up the appropriate application. For example, clicking the **VTK Edit** button closes your VTK Live and brings up your VTK Edit application.
?	Calls up the **Help** window. It can guide you through tours of each activity and help you learn each application.
_	Minimizes the VTK400 application you are in.
X	Closes the VTK400 application you are in.

Panels Brings up a pop-up menu, from which you can toggle the **Audio Mixer**, **Monitors**, and **VTR Transport/Sync Roll** on and off. When the Audio **Mixer** is brought up, it appears in the upper left corner of the screen, the monitors appear in the middle, and the **VTR Transport/Sync Roll** panel appears in the upper right corner of the screen.

Configure Brings up a pop-up menu, from which you can open the panels for various settings. These panels are **Installed Cards**, **Keyer Settings**, **Framestore Settings**, **Color Correction**, **Pro Color Correction**, **GPI Settings**, **Serial Devices**, **Input Settings**, **Advanced Input Settings**, **Output Settings**, **Global Settings**, and **Digitize Settings** (if Time Machine is installed).

Audio Mixer

The audio mixer is found in both VTK Live and VTK Edit. The mixer in VTK Edit is used for post-production mixing, while the mixer in VTK Live is designed for live audio mixing. You can access the audio mixer from the **Panels** button, located on the bottom right of the screen (Figure 3.20).

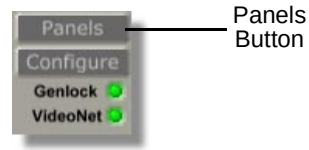


Figure 3.20: Panels Button

Select **Audio Mixer** from the pop-up menu (Figure 3.21).

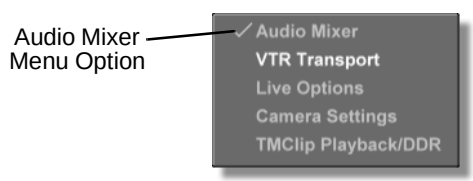


Figure 3.21: Selecting Audio Mixer

The audio mixer appears (Figure 3.22).

Figure 3.22: Audio Mixer

Here's how to use the features in the audio mixer.

Trim Controls the input gain of the channel. This generally is adjusted once using a reference tone for the input device and left alone from that point. The trim is effective before any other levels are set.

Send L Controls the level of the channel that is sent to the left effects send output jacks. When working with an external effects device, you may want a small amount of effect applied to a channel. Send L controls the level of the mix sent to the effects processor. This level is adjusted after the fader is adjusted.

Send R — Controls the level of the channel that is sent to the right effects send output jacks. When working with an external effects device, you may want a small amount of effect applied to a channel. Send R controls the level of the mix sent to the effects processor. This level is adjusted after the fader is adjusted.

EQ — Each channel has its own **EQ Settings** Panel. To set the EQ for an input, click on the **EQ** button. This opens up the **EQ Settings Panel** for the selected channel. For more information on the **EQ** panel, see "EQ Settings Panel" on page 73.

Solo — Sets the selected channels to be audible, as indicated by the select lights. The channels are only heard through the **Monitor** outputs, when **Solo** is selected, allowing you to cue up the volume of the track without having the track go out "over the air."

Mute — Mutes or silences the selected channels.

Pan — Set how much of the channel is sent to the right program output and how much is sent to the left program output. In a mono situation, the **Pan** knob should be set to the middle. If the channel is one of two channels linked as a stereo pair, the knob is automatically set to either the left or right.

Channel Fader (Attenuator, Slider)

Controls the level of the channel. By clicking-and-dragging on the slider, the level can be controlled. Clicking-and-holding in the area either above or below the fader will increase or decrease the value. Right-clicking on the slider displays a pop-up menu (Figure 3.23).

Figure 3.23: Channel Slider Pop-Up Menu

Fade Out—Fades from the current location to off.

Fade In—Fades from the current location to zero decibels (full on).

Mic—Adds an additional 20 decibel gain to the channel's signal before the signal is digitized. Selecting **Mic** controls one channel (in the original Graham-Patten configuration, selecting **Mic**, controlled two channels).

Line—Removes the 20 decibel gain that gets added when **Mic** is selected. Selecting **Line** controls one channel (in the original Graham-Patten configuration, selecting **Line**, controlled two channels).

Right-clicking on channels seven and eight display the same pop-up menu, but with the addition of two more functions: **Input** and **Return**.

Input—Gives you two additional inputs without having to re-connect any cables.

Return—Gives you two additional returns without having to re-connect any cables.

Channel Name	A piece of "virtual masking tape" that can be used to name your inputs. The default names of each input are **1**, **2**, and so on. To change these names, click and highlight the existing name and type in a new one. Press **Enter** or click in another channel name box to have the change take effect.
Stereo	Links pairs of channels as stereo pairs. When this button is selected, the **Pan** knobs are automatically set for full left and full right. The sliders (faders) will lock together as well, so any movement of one slider affects the other.
VU Meters	These red and green rectangles mimic an LED level readout. When working with the mixer, your levels should peak just inside the red; about 0db. Right-clicking on the meter allows you to change its metering properties. You can change the meter to **VU** or **PPM**. A **VU** (Volume Unit) meter is an averaging volume level meter whose response is closely related to the perceived loudness of an audio signal. A **PPM** (Peak Program Meter) displays peak audio signals.
Monitor Levels	Controls the levels of the monitor speaker outputs.
Program	Displays a menu that allows you to choose which output the monitor outputs are listening to. You can choose between the **Program Out**, **Effect Send**, or the channels with **Solo** turned on.
Mute	Silences the monitor speaker output.
Monitor Stereo	Links the monitor sliders so that when one is adjusted, the other one follows automatically.

Master Levels	Controls all left and right levels going out to **Program Out**. When dragging these sliders, you should see a small decibel listing for the levels. Like most digital audio equipment (and unlike analog equipment), the maximum level is 0dB, so keep that in mind when setting your master record levels.
Use Default	Adjusts your settings to the default settings for the mixer.
Set Default	Allows you to save a particular mixer setting as your default.
Master Stereo	Links the master record levels, so both slide together.
Ext Mixer	Allows you to sync up GlobalStream's AP-100® external mixer. For further instructions on using this device, refer to the documentation included with the AP-100.

EQ Settings Panel

The EQ style used is a three-band parametric equalizer, with individual settings for the **High**, **Mid** and **Low** bands.

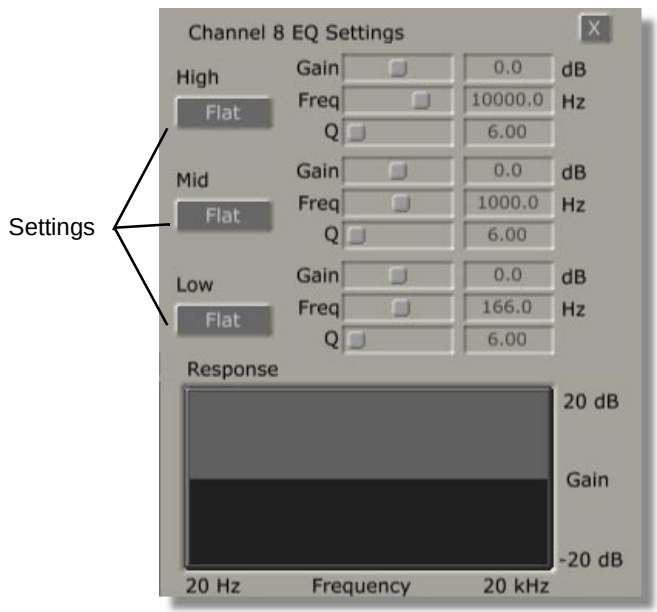


Figure 3.24: EQ Settings Panel

Settings

Chooses between the different settings for each part of the equalizer. Each section can be set to **Flat** (default settings), **Notch**, or **Peak**. The high and low ranges have an additional setting called **Shelf**. This gives you the ability to set a high shelf or low shelf limit to the frequencies passed through the mixer. **Flat** doesn't make any modification to the sound. **Notch** lowers the level of the frequencies in this range. **Peak** raises or lowers the levels in this range.

Gain	Sets the amount of EQ effect applied to the frequencies in this range.
Frequency	Sets the center frequency that the setting is applied to. This frequency is at the top of the **Peak** or at the bottom of the **Notch**, or set at the **High Shelf** or **Low Shelf**.
Q	Sets the band of frequencies around the center frequency that is affected. A high value means a very sharp drop-off before or after the selected frequency, and a low Q value means the EQ affects a larger range of frequencies around the center frequency.
Response Window	This window provides a graphic representation of the EQ settings. EQ settings can be saved by clicking-and-dragging a picon from this window into a bin. Once this picon (following figure) is saved to a bin, it can be used by dragging-and-dropping it from a bin into the Response window or by dragging-and-dropping it from a bin onto an **EQ** button in the **Audio Mixer** panel or onto a clip or audio track in a timeline. If the picon is dropped onto a clip in the timeline, the EQ settings will affect all channels of audio for this clip. If the picon is dropped onto an audio track, the EQ settings will only affect that track.

Figure 3.25: A Typical EQ Settings Picon

VTR Transport/Sync Roll

With the **VTR Transport/Sync Roll** panel (Figure 3.26), you control VTRs directly from the VTK Live interface. This panel also gives you the flexibility to digitize live clips or build timelines that can be played back through VTK Live or edited in VTK Edit.

You can play back a timeline in your VTK Live by loading it into the FX window, above the **Mix**, **FX**, and **DSK** buttons. To do this, double-click the timeline's picon or drag-and-drop it into the FX window. Timelines loaded into the FX window are sent out "over the air" by clicking the **Auto** button.

Figure 3.26: VTR Transport/Sync Roll

Following is a list of the buttons and functions of this panel:

Ports — Ports are serial inputs that control external devices such as tape decks. Clicking on the **Ports** button brings up a pop-up menu that gives the option to choose ports **1 to 4**, **5 to 8**, **9 to 12**, or **13 to 16**.

1, 2, 3, 4 — **1**, **2**, **3**, **4** represent the ports with VTRs connected to VTK400. The number corresponds to the port the VTR is connected to. Choose the VTR to be controlled from the **VTR Transport/Sync Roll** panel by clicking its button, turning it yellow. Assign each deck as a record or play deck by clicking the button to the right of the VTR's name and choosing **Record** or **Play** from the pop-up menu. The LEDs show the status of the decks. A red light means that there is no signal and that the deck is out of sync. A green light means that there is a good signal and the deck is in sync.

TM (Time Machine)

Clicking the **TM** button allows you to digitize live clips. If Time Machine is selected (button is yellow), all of the transport control buttons are disabled, except the **Stop** and **Record** buttons.

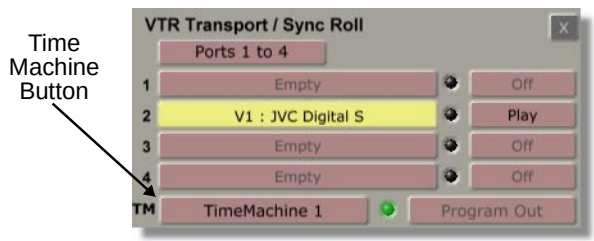


Figure 3.27: Time Machine Button

Assign which source Time Machine digitizes from by clicking the button to the right of the **TM** button and selecting a source from the pop-up menu.

Figure 3.28: Source Pop-Up Menu

Status Window	Displays current status of the selected VTR or Time Machine.
Insert V, A1, A2	Chooses what is recorded by a record deck. A record deck must be selected to use these buttons. Clicking on **V** selects video. Clicking **A1** and **A2** selects audio. The buttons turn yellow when they are selected.

Transport Controls

Control the selected device. The buttons, in order from left to right, are:

Rewind

Rewinds

Reverse Play

Plays in reverse

Jog Back 1 Frame

Moves back one frame at a time

Pause

Puts the deck into pause mode, pauses playback if the tape was moving or spools the tape up so it is ready to play.

Jog Forward 1 Frame

Moves ahead one frame at a time

Play

Plays normally

Fast Forward

Fast forwards

Stop

Stops play or recording

Eject

Ejects tape

Record

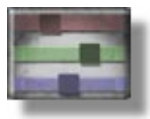
Starts recording

Mark

Marks an in point. During sync roll editing, it is only necessary to mark in points.

Cue	Cues a single deck to a marked in point.
Shuttle Slider	Clicking the shuttle slider and dragging it right or left shuttles a selected deck forward or in reverse.
Lock	Used in conjunction with the shuttle slider. If the **Lock** button is on, when you release the mouse button while shuttling, the tape pauses. If the **Lock** button is off, the tape continues shuttling after the mouse button is released.
Cue All	Simultaneously cues all of your tapes to their respective reference point.
Start All	Starts all decks rolling. If a deck is selected as a record deck, it puts the deck in **Assemble** mode for recording over any existing information on the tape.
Sync Roll	Starts all source decks playing back and starts the edit deck recording. Sync Roll does a 5-second preroll before the cue point to ensure the edit deck is up to speed at the beginning of the sync roll.
Stop All	Stops all controlled VTRs.
Rec Safety	When **Rec Safety** is on, clicking the **Start All** button brings up a pop-menu that asks if you really want to record.
Build Timeline	Automatically builds a timeline as events, such as clips and transitions, are switched. **Start All** must be on while you create your timeline. Once you've switched your project, click the **Stop All** button and VTK400 generates the timeline for you.
Pause/ Continue	When clicked, the **Pause** button pauses the build timeline function, and its face changes to read **Continue**. Press **Continue** to restart the build timeline function. **Pause/Continue** only functions if **Build Timeline** is on; otherwise the button's letters are grayed out.

Timeline Picon



Represents the timeline. Right-click on the **Timeline** picon to bring up a pop-up menu with these options: **Properties**, **Rename**, **Set Picon**, **Make all Picons**, **Save Text EDL**, and **Play in Loop**.

Choosing **Properties** brings up the **Timeline Properties** panel.

Choosing **Rename** lets you name the timeline.

Choosing **Set Picon** changes the picon of the timeline from the default picon to the image on the program monitor.

Choosing **Make all Picons** creates picons for all events in the timeline.

Choosing **Save Text EDL** changes the format the timeline is saved in. When this is selected, dragging the timeline picon into a bin saves the timelines as a CMX text EDL. Any CMX editor can use this EDL. Multiple export formats will be available in addition to the current CMX format.

Choosing **Play in Loop** plays the selected clips in a loop.

New TL

Clears the timeline and starts a new one.

Digitized Clip Picon

The picon of a live clip digitized with Time Machine. The clip's picon is the first frame of the clip.

New Clip

Clears the clip and starts a new one.

Save

Clicking the **Save** button to the right of the Timeline picon saves the timeline to the default bin set in the **Global Settings** panel. Timelines can also be saved by dragging-and-dropping them into a bin. Clicking the **Save** button to the right of the **Digitized Clip** picon saves the clip to the default bin set in the **Global Settings** panel. Clips can also be saved by dragging-and-dropping them into a bin.

Camera Settings

The **Camera Settings Panel** allows you to remotely control a Sony® VISCA camera from the VTK Live interface. This panel is launched by clicking on the **Panels** button located on the main VTK Live interface and selecting **Camera Settings** from the drop-down menu.

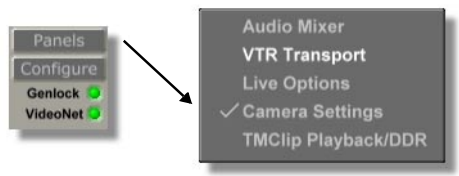


Figure 3.29: Launching the Camera Settings Panel

The **Camera Settings Panel** is displayed:

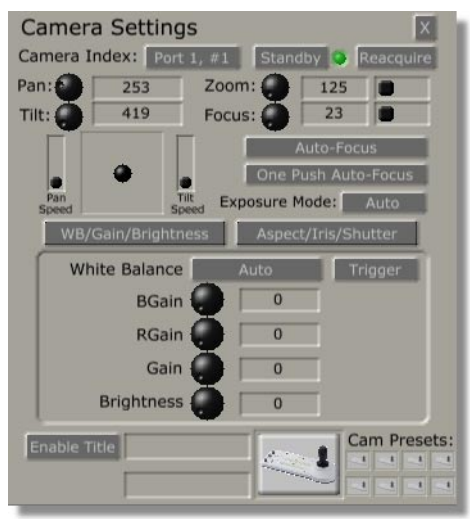


Figure 3.30: Camera Settings Panel

The following items are found on this panel:

Camera Index	Displays a pop-up menu that lets you select which camera's properties to modify.
Reacquire	If for any reason a camera is not shown in the Camera Index pop-up menu, try clicking on this button to reacquire the cameras that are connected to the VTK400's serial ports.
Standby	Toggle on to put the Camera in Standby mode. The green LED button indicates the mode.
Pan	You may change the pan by clicking on the knob and turning your mouse or by entering a number in the value box.
Tilt	You may change the tilt by clicking on the knob and turning your mouse or by entering a number in the value box.
Pan Speed	Allows you to change the Pan Speed using the vertical slider underneath the Tilt knob.
Tilt Speed	Allows you to change the Tilt Speed using the vertical slider underneath the Tilt editbox.
Pan/Tilt 2D Slider	Allows you to change the Pan & Tilt simultaneously using the two dimensional slider between the Pan Speed and Tilt Speed sliders.
Zoom	You may change the zoom by clicking on the knob and turning your mouse or by entering a number in the value box.
Zoom Speed	Allows you to change the Zoom Speed via the horizontal slider to the right of the Zoom editbox.
Focus	You may change the focus by clicking on the knob and turning your mouse or by entering a number in the value box.
Focus Speed	Allows you to change the Focus Speed via the horizontal slider to the right of the Focus editbox.

Auto-Focus	Toggles auto-focus on or off.
One Push Auto-Focus	Performs an auto-focus once; however, this is unnecessary if Auto-Focus is enabled.
WB/Gain/ Brightness	Displays the White Balance, BGain, RGain, Gain, and Brightness controls. The White Balance control has a pop-up menu and a Trigger button, while the other controls have a linked knob and editbox. (Please refer to your camera manual for a description of these properties.)
Aspect/Iris/ Shutter	Displays the Aspect Ratio, Iris, Aperture, Shutter, and Exposure Compensation controls. The Aspect Ratio control has a pop-up menu, while the other controls have a linked knob and editbox. (Please refer to your camera manual for a description of these properties.)
Enable Title	A toggle button that lets you enable the two lines of title text.
Title Edit boxes	Edit boxes that let you specify the title text.
Camera Settings Picon	A picon that lets you drag camera settings into a bin to save a file, or lets you drop a file onto the picon to load the settings.

NOTE: Dragging a file from the bin onto the **Camera Settings Picon** loads the settings from the file and adjusts the camera properly. Dragging a file from the bin onto a **Camera Preset Picon** loads the settings from the file and saves them to the registry. Dragging a file from the **Camera Settings Picon** onto the **Camera Preset Picon** saves the current settings to the registry (similar to the Save Current Settings menu item). Dragging a file from a **Camera Preset Picon** to the **Camera Settings Picon** loads the settings in the registry (similar to Load Saved Settings menu item). Dragging a file from a **Camera Preset Picon** to the bin saves the registry setting to a file.

Camera Preset Picons

Lets you load/save camera presets, either internal to the camera or to the host PC. Each picon represents a different setting/preset. (Note: there may not be as many presets on the camera as there are picons.) These picons also have drag/drop functionality and right-clicking on them reveals a pop-up menu.

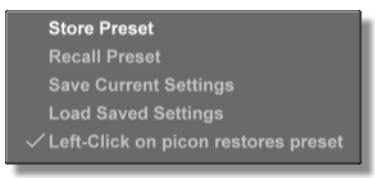


Figure 3.31: Camera Preset Pop-Up Menu

Store Preset—Saves the current camera settings as a camera preset.

Recall Preset—Uses the saved camera preset, if it exists.

Save Current Settings—Saves the current camera settings to the registry.

Load Saved Settings—Loads the saved camera settings from the registry, if it exists.

Left-Click on picon restores preset—When this is enabled, the user may simply left-click on this picon to recall the preset. The user may disable this option.

TMClip Playback/DDR Panel

The TMClip Playback/DDR Panel allows you to have full transport control over a Time Machine clip and is displayed by clicking on the **Panels** button located on the main VTK Live interface and selecting **TMClip Playback/DDR Panel** from the drop-down menu.

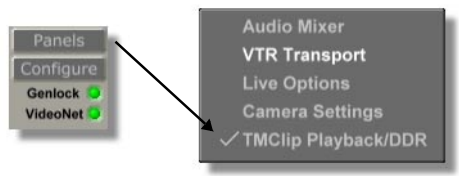


Figure 3.32: Launching The TMClip Playback/DDR Panel

The **TMClip Playback/DDR Panel** is displayed:

Figure 3.33: TMClip Playback/DDR Panel

The following fields are found on this panel:

Playback Functionality

The TMClip Playback controls are at the top of the panel. There are a number of controls that are similar to VTK Edit's Left Monitor controls as well as VTK Edit's Clip Main Properties controls. A description of the controls are listed below.

TM Selector	Clicking on this button pops up a menu that allows the user to select a TMClip currently loaded on the Live softbuttons for playback and editing. This button's menu also allows the user to select the TMClip Playlist for playback, or the playlist's individual clips for editing.
Playback Timecode Box	Displays current timecode of the selected clip (or TMClip Playlist). The user can also enter the desired timecode here and press the **Enter** button on the keyboard in order to move the clip to the specified timecode.
Shtl, Jog, Lock buttons and Knob	The **Shtl** (Shuttle) and **Jog** buttons are mutually exclusive buttons that determine the speed at which the user can traverse through the TMClip via the **Knob**. When the **Shtl** button is selected, the user can traverse the clip with speeds greater than normal playback speed. When the **Jog** button is selected, the user can traverse the clip with fractional speeds. When the **Lock** button is on, releasing the knob with the mouse will return the knob to the default 0 position and pause the clip; if the button is not on, the knob will retain its position and the clip will continue shuttling at the current speed. The current speed in which the user traverses the clip is shown above the knob.
Transport Controls	The transport controls are, from left to right: Go to First Frame, Rewind, Reverse Play, Jog Back 1 Frame, Pause, Jog Forward One Frame, Play, Fast Forward, Go to Last Frame.

Mark In/Mark Out	As a clip is playing, clicking Mark In specifies the clip's in point, which clicking on Mark Out specifies the clip's out point.
In Point/Out Point Timecode	Displays the in and out points of the selected clip. Mark the in and out points by cueing to the desired point and clicking the **Mark In**, **Mark Out** buttons. Or, you can enter the desired timecode here and press the **Enter** button on the keyboard.
Cue In	Moves the source to the position shown in the **In Point** timecode box.
Cue Out	Moves the source to the position shown in the **Out Point** timecode box.
Playback Speed	Adjusts the playback speed and direction for the selected TMClip. The user can edit the number box to type in a specific speed, or click on the button to invoke a pop-up menu with the following options: **8x Rev** (Reverse), **4x Rev**, **2x Rev**, **Reverse**, **Half Rev**, **Quarter Rev**, **Quarter Fwd** (Forward), **Half Fwd**, **Normal**, **2x Fwd**, **4x Fwd**, **8x Fwd**.
Loop Count	Lets the user specify the number of times the TMClip loops by entering the number into the number box. Alternatively, the user can turn on the **Infinite** button so the clip loops continuously.
Video Rate	Clicking on the **Video Rate** button invokes a popup menu with the following options: **Run**, **Field Freeze**, **Frame Freeze**, **Strobe**. Run plays the clip normally, Field/Frame Freeze displays the first field/frame of a clip and holds it for the duration of the clip, and Strobe stutter-steps the clip as if a strobe light was going off. When Strobe is selected, the **Strobe Rate** number box is enabled and allows the user to type in a strobe rate for the clip.
Clip Info	Displays the name of the clip.

Component	Displays the components of the clip selected for playback. Clicking on the button invokes a popup menu that allows the user to check on or off the available components.

Digital Data Record Functionality

When the **TMClip Record** button is on, the TMClip Record controls, below the playback controls, are visible. There are a number of controls that are similar to the VTR Transport Panel, but this panel differs in that the user may record on two different Time Machines simultaneously. A description of the controls are listed below.

Rec TM	Specifies that a TMClip should be recorded on the Time Machine (if it exists).
Record Volume	Displays the name of the Time Machine Volume to which the clip will be recorded. Clicking on the button will invoke a popup menu that allows the user to select which volume on which to record the clip.
Record Component	Displays the components that will be recorded to the clip. Clicking on the button will invoke a popup menu that allows the user to select which components should be recorded.
Record Source	Displays the components of the clip selected for playback. Clicking on the button invokes a popup menu that allows the user to check on or off the components to be recorded.
Record Button	Starts recording (or starts the record countdown).
Stop Button	Stops recording (or stops the record countdown).

TMClip Length/ Record Delay	Timecode box that displays the approximate number of frames that have been recorded while recording a Time Machine clip. This timecode box can also be used to enter a timecode that specifies a delay before recording; simply type in the delay (e.g., 00:00:05:00 for five seconds), press the keyboard's **Enter** key, right-click on the timecode box and select the menu item **Save as default delay value**. The next time the **Record Button** is pressed, the timecode will show the delay value counting down until it reaches 0, at which point the Time Machine will start recording and the timecode will display the approximate number of frames that have been recorded. Right-clicking on the picon invokes a popup menu with the following options: **Save as default delay value**, **Reset to default delay value**, **No delay (record immediately)**.
Recorded Clip Picon	The picon of a recorded Time Machine clip. The clip can be saved by dragging-and-dropping them into a bin. If only one clip was recorded, right-clicking on the picon invokes a popup menu with one option: **Set Picon**. If two clips were recorded simultaneously, right-clicking on the picon invokes a popup menu with the following options: **Set Picon 1**, **Set Picon 2**, **Set Both Picons**.
New Clip	Clears the clip and starts a new one.
Save Clip	Saves the recorded TMClip to the default bin set in the **Global Settings** panel. A clip can also be saved by dragging-and-dropping the Recorded Clip Picon into a bin.

Volume Free Space Gauge	Shows the selected Time Machine Volume name and displays a graphical representation of the amount of space used (in red) and the free space left (in green) on the video and audio drives of that volume. Clicking on this button invokes a popup menu that allows the user to select a volume (connected to any Time Machine) in order to display the used and free space as a graphical representation.
Status Box	A label that displays any status error messages.

Playlist Functionality

When the **TMClip Playlist** button is selected, the **TMClip Playlist Bin** is shown and the TMClip Record controls are hidden.

Figure 3.34: TMClip Playlist

You can drag and drop TMClips into the bin. You can use the TM selector at the top to select one of the clips in the playlist (PL#) and edit its attributes (e.g., components, speed) via the playback controls. You can

also select the clip by left-clicking on its picon in the bin. Playback is not supported for the individual clip.

The small picon to the right of the TMClip Playlist button is the TMClip Playlist picon.

Figure 3.35: TMClip Playlist Picon

You can right-click on it to invoke a menu to reset the picon. You can also drag the picon and drop it in a bin to save the TMClip Playlist, which is saved with a .cpl extension (for Clip PlayList). After which, you can then drag the file from the bin and drop it on the picon to reload the playlist.

To play the TMClip Playlist on Program, you must do two things:

- Click on the selector button to invoke the menu and select the Playlist menu item, which prepares the TMClip Playlist and provides VTR control for playback.
- Right-click on one of the softbuttons to invoke the menu and select the Clip Playlist item. This will load the Clip Playlist softbutton (CPL). Select it on Program, or select it on Preview and do a Cut (or Auto). This should start playing the playlist. (The TMClip Playlist only starts automatically immediately after it's been prepared and selected, just like a TMClip.)

When **Playlist** is selected, the user has limited VTR control through the clip. You can play, pause, skip to next clip, and skip back to previous clip. You can double-click on a clip in the TMClip Playlist Bin to automatically move to that clip. If the TMClip Playlist is playing, moving to a new clip should keep playing, with the following exceptions:

- If playing the first clip, skipping back will pause on the first frame.

- If playing the last clip, advancing forward will pause on the last frame.

The **TMClip Playlist Bin** is similar to a regular bin's Clip view method.

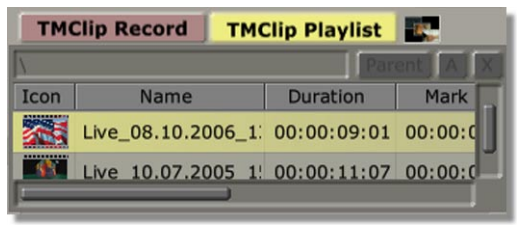


Figure 3.36: TMClip Playlist Bin

Each clip has a row with multiple fields (many of which correspond to the playback edit controls). Some of the fields are only visible if you scroll to right. They are as described below:

Icon	The clip's picon.
Name	The clip's name.
Duration	Duration of the clip, as determined by the Mark In/Out points, speed and loop count. The duration field will be updated when any of these attributes are modified.
Mark In	The clip's In point.
Mark Out	The clip's Out point.
Speed	The clip's speed.
Loop	The clip's number of loops.
Components	The clip's video and/or audio playback components.

You can edit the TMClip Playlist by dragging in new clips, removing existing clips (right-click on the picon to get the item menu), or re-ordering the clips. Note that the **TMClip Playlist Bin** has its controls

disabled—it is always using this specific size and format, and manual ordering is always on. To reload the TMClip Playlist, select **Unload Playlist** from the selection menu and then select **Playlist** again to re-prepare it. You can also unload the TMClip Playlist by right-clicking on the CPL softbutton and selecting **Unload Clip Playlist** from the menu.

The TMClip Playlist Bin is also useful for simply storing frequently used TMClips. You can drag a TMClip from the TMClip Playlist Bin onto an empty softbutton to load one of the clips.

Other VTK Live Controls

This section explains the usage of the vector scope and the status lights.

Vector Scope

In both VTK Live and VTK Edit, you can access the **Vector Scope/ Waveform Monitor**. In VTK Edit, the vector scope/waveform monitor functions the same, the only difference is that the user interface looks slightly different. The vector scope/waveform monitor analyzes details of the internal signal waveforms. It is available if you have a ClipGrab card installed. The vector scope/waveform monitor is useful for analyzing picture content information, such as color correction, setup level, and peak signal levels, but not timing information. Because the internal signals in VTK400 are digital, there is no viewable timing data for the **vector scope/waveform monitor** to display.

NOTE: The vector scope can be seen at the same time as the program monitor if your PC screen resolution is at least 1280 x 1024.

To access the scope, click on the **Outputs** button above the program monitor (Figure 3.37).

Figure 3.37: Outputs Button

Select **Scope** from the **Output** drop-down menu (Figure 3.38).

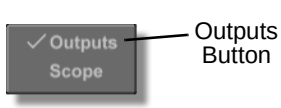


Figure 3.38: Output Menu

When you select **Scope**, the vector scope appears (Figure 3.39).

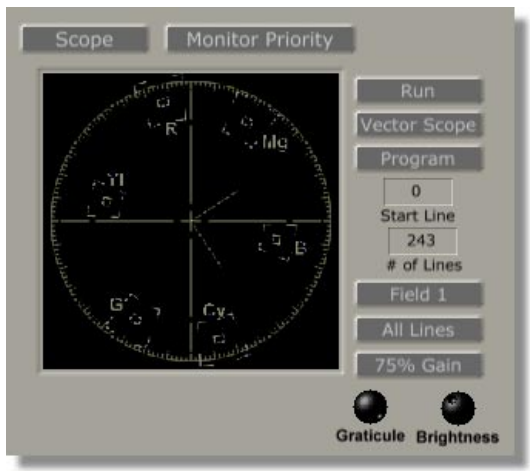


Figure 3.39: Vector Scope in VTK400's VTK Live

To turn the scope on, click the **Run** button on the bottom left corner. When this button is on, the scope updates as the video plays. If this button is not on, the scope displays color information from a frozen frame. This can be useful if you want to look at the information from a particular section of video. To do this, click the **Run** button off at the desired point, and it freezes the scope output.

When viewing the scope, the letters stand for the following colors:

R	Red
Mg	Magenta
B	Blue
Cy	Cyan
G	Green
Yl	Yellow

Colors show up on the scope as illuminated areas in a position on the display that is proportional to their color. The distance of the illuminated area from the center of the scope is proportional to the saturation, and the position in the arc of the circle (at which degree it shows up) is proportional to the hue. White and black both show up as dots in the center of the scope.

To close the scope, select **Output** from the **Scope** button, located on the top of the screen.

Here's how to use the options on the scope:

Scope Button	Drop-down menu that allows you to choose between **Scope** and **Monitors**. If **Monitors** is selected, both the **Program** and **Preview** monitors are displayed. If **Scope** is selected, the **Program** monitor and the Vector Scope are displayed.

Monitor Priority Button

Drop-down menu that allows you to choose the update rates of the **Program** and **Preview** monitors in conjunction with the **Input** monitors.

The following options are available:

- **Program Priority**: Program has the highest priority and will be updated once every two times. Preview and the active Input Monitors have equal priority and will be updated in round robin fashion every other time. (Example: Pgm, Prv, Pgm, 1, Pgm, 2, Pgm, 3, Pgm, Prv,...)
- **Program & Preview Priority**: Program and Preview have the highest, and equal, priority. Program and Preview will be updated once every three times. The active Input Monitors have equal priority and will be updated in round robin fashion every third time. (Example: Pgm, Prv, 1, Pgm, Prv, 2, Pgm, Prv, 3, Pgm, Prv,...)
- **Equal Priority**: Program, Preview, and active Input Monitors all have equal priority and will be updated in round robin fashion. (Example: Pgm, Prv, 1, 2, 3, Pgm, Prv,...)

Program (Source Button)

Selects the source of the video to be analyzed. Click the button and select the desired source from the pop-up menu. The options are: **Program**, **Preview**, **Input 1**-**Input 4**. The default is **Program**.

Run

Turns the scope on. Click this button if you want the scope to update as video plays. If this button is off, the scope analyzes a frozen frame.

Field 1, **Field 2**

Selects which video field of each frame, **Field 1** or **Field 2**, is analyzed. The button displays the field currently selected. To switch to the other field, click on the button. It toggles to the other field.

75% Gain — Allows PAL users to adjust 100% color values to 75% color values.

Vector Scope — Click this button to choose from the following types of scopes: **Vector Scope**, **Y Waveform**, **Cb Waveform**, **Cr Waveform**, or **Parade**. The default is **Vector Scope**.

Vector Scope: Analyzes color information.

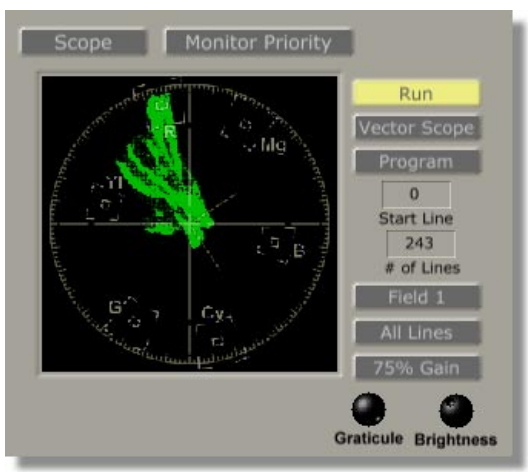


Figure 3.40: The Vector Scope, Analyzing Color

With the color bars loaded, the dots line up into boxes. The dots are sharp points, indicating the source is a sharp signal. For the color bars, hazy, scattered dots indicate the signal has a lot of noise. For other images, which don't have only pure colors as the color bars do, a pattern of scattered dots is normal.

Y Waveform: Analyzes levels of brightness.

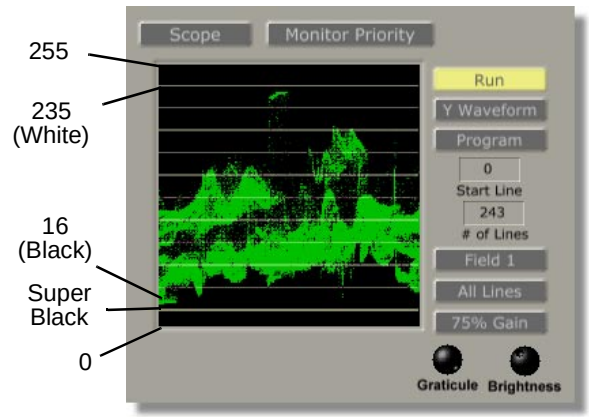


Figure 3.41: The Y Waveform Monitor, Analyzing Brightness

The horizontal axis of the display represents the position of the signal on the screen from left to right.

The vertical axis represents luminance values from 0 (bottom) to 255 (top).The top line represents a digital value of 235 (which corresponds to about 100 IRE for NTSC), and represents the whites in the picture. The bottom line represents a digital value of 16 (which corresponds to about 7.5 IRE for NTSC), and represents the blacks in the picture. Anything below this line is considered super black.

Cb Waveform: Measures the relative blueness of the picture.

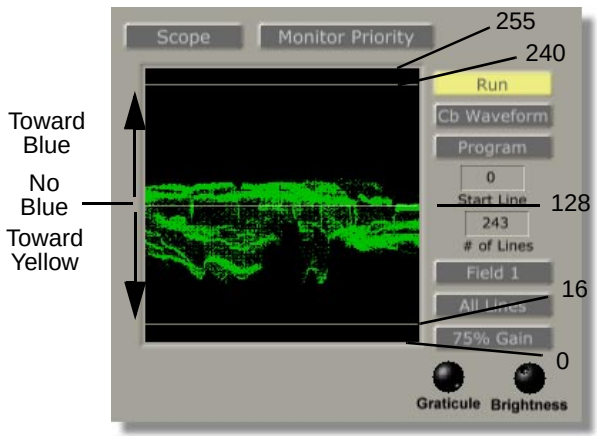


Figure 3.42: The Cb Waveform Monitor, Analyzing Color Bars

The line in the center is a zero color value (no blue; a numeric value of 128 equals zero color). Dots above the line represent blues in the picture. Dots below the line represent yellows.

Cr Waveform: Measures the relative redness of the picture.

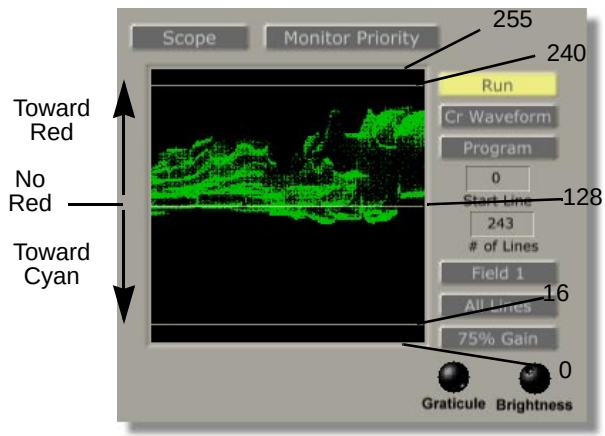


Figure 3.43: The Cr Waveform Monitor, Analyzing Color Bars

The line in the center is a zero color value (no red; a numeric value of 128 equals zero color). Dots above the line represent reds in the picture. Dots below the line represent cyans.

Parade: Displays the Y Waveform, Cb Waveform, and Cr Waveform monitors in the same panel, from left to right.

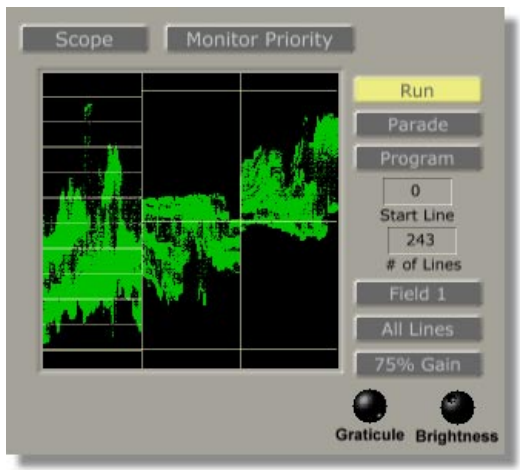


Figure 3.44: Vector Scope in Parade Mode

Start Line — Sets the horizontal line of the picture at which the scope begins analyzing color information. The top of the screen is line 0, and the bottom is line 243.

# of Lines — Sets the size of the vertical band that the scope analyzes. The entire screen is 243 lines.

All Lines — Resets **Start Line** to 0 and **# of Lines** to 243 so that all lines of the picture are analyzed.

Graticule — Adjusts the brightness of the scope overlay.

Brightness — Adjusts the brightness of the picture information the scope displays.

Status Lights

The status lights are located on the lower right-hand section of the VTK Live interface.

Figure 3.45: VideoNet and Genlock Status Lights

Following is a list of how the Genlock and VideoNet status lights function:

VideoNet Shows whether the PC and the VTK400 are communicating. If for some reason VTK Live stops responding, check to see if the green light is lit. You can also check the status of the last VideoNet transmission by right-clicking on the light.

Genlock Shows the status of the external genlock. If there is no light, this means VTK400 is not genlocked to an outside source. A green light indicates VTK400 is genlocked to a good reference signal. A red light means a bad reference signal is being fed into the genlock input. This could mean that a PAL or monochrome signal is being used as a genlock reference signal. This is generally not what you want to see.

Note that if the **Black Out** is used to genlock all other devices, this light is off. The status light reflects only what is hooked to the genlock input.

VTK LIVE USER GUIDE
TUTORIALS

CHAPTER 4

Chapter 4

Tutorials

This chapter is designed to get you up and running with your VTK Live program. There are four tutorials that cover the basics of using VTK Live.

- Setting Up a Chroma Key 108
- Setting Up and Performing Live Switching 119

Setting Up a Chroma Key

The chroma key is one of the most widely used tools in news broadcast. It is used nightly on weather broadcasts. The concept behind chroma keying is simple: remove a selected color from a video signal and replace it with another video signal. Chroma keying allows your local meteorologist to stand in front of a satellite map and point out a storm moving in. In actuality, the weatherman is standing in front of a green or blue wall, and a chroma keyer is removing the green or blue from the video signal and replacing it with another video image, in this case a satellite image.

The following topics are covered in this tutorial:

- Auto-setting the chroma keyer
- Cleaning up a key
- Adjusting a chroma key
- Keying in framestores and live sources
- Manually setting the chroma keyer

Auto-Setting The Chroma Keyer

The VTK400 chroma keyer has a sophisticated **Auto-set** function that automatically chooses the predominant color value in a video image. For example, if you use a framestore with a predominantly blue background, **Auto-set** sets the chroma keyer to key out, or remove, certain shades of blue.

This project shows you how to use the **Auto-set** function of the VTK400 chroma keyer, and how to use the chroma keyer to key in part of a framestore image over several different backgrounds.

1. Locate the bin labeled **VTK400\Bins\Stills\Manmade** (Figure 4.1).

Figure 4.1: VTK400\Bins\Stills\Manmade

2. Double-click on the picon with three balloons (Figure 4.2) to load the framestore into the **Preview** bus. Note which framestore button the framestore was loaded into.

Figure 4.2: Three Balloons Picon

You see the three balloons framestore in the **Preview** monitor.

The **Auto-set** chroma keyer feature looks at framestores or video only on the Preview bus to find the prevalent color value. Framestores on the Program bus do not effect which color is keyed out.

3. Select the Framestore that you wish to use as a background for the keyed source.

   Drag the file and drop it into the **Source Monitor** above the softbutton. If the background has not already been set, this will enable keying. If it has been set, you may right-click on the **Source Monitor** to display the context menu. On the context menu, select **Key With Background Source**. Now, perform a cut or select the Framestore you're keying with on **Program**.

4. Click on the small color rectangle next to the **Key** label in the **Keyer Controls**(Figure 4.3).

Figure 4.3: Keyer Controls

You see the **Keyer Settings** panel (Figure 4.4) in the upper right corner of your screen.

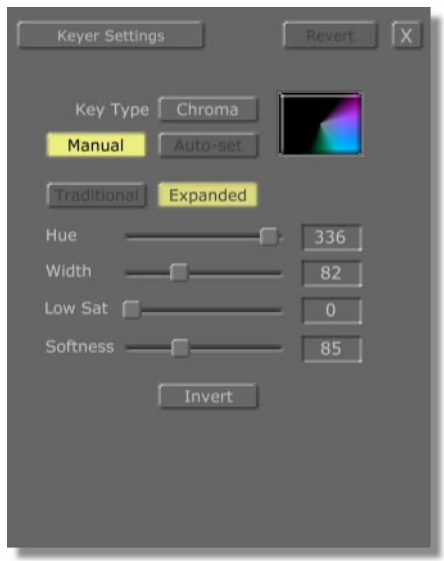


Figure 4.4: Keyer Settings Panel

5. Click on the **Key Type** button in the **Keyer Settings panel** and choose **Chroma** from the pop-up menu.

6. Click the **Auto-set** button. This sets which color is keyed out, based on which source is selected as the key source.

NOTE: If the **Manual** button is selected (is yellow) you cannot use the **Auto-set** function. Turn off the manual function by clicking on the **Manual** button.

You see the color picon in the **Keyer Settings** panel turn black with a small blue dot in the center. The picon in this panel represents a color wheel. The colors visible in the wheel are the colors that are keyed out. Since our still is mostly blue, the keyer is now set to key out, or remove, the blue from it. The **Auto-set** function uses an algorithm to choose the best possible shades of blue to remove from the image, without removing the other colors in the picture.

Figure 4.5:

Cleaning Up The Key

7. The edges of the balloons are a little fuzzy at this point, so use the **Width**, **Softness**, and **Low Sat** sliders (Figure 4.6) on the **Keyer Settings** panel to clean up the key.

Figure 4.6: Width, Softness, and Low Sat Sliders

Following is a list of the functions of the **Width**, **Soft**, and **Low Sat** sliders:

Width — Increases or decreases the amount of color taken out of the signal. If too much blue is removed from the image, lowering the range value compensates.

Softness — Affects the edges of the objects. Increasing the softness smooths the edges of the objects you are trying to key. Be careful not to increase the **Softness** value too much, or it will cause your image to become transparent.

Low Sat — Used to limit which colors are being removed from the video signal. It specifically affects colors that are closest to white, so by increasing the **Low Sat** value in this tutorial, you no longer key out the lightest shades of blue. In practical use, the **Low Sat** value is usually tinkered with to remove “sparklies” caused by uneven lighting in a live environment.

Adjusting A Chroma Key

Adjusting the **Width**, **Softness**, and **Low Sat** values is a bit of an art form. Usually, the best way to do this is to start with the **Width** value first.

1. Click on the **Width** slider and drag it right or left to adjust the value.

   You can also adjust values by clicking on the numeric value and dragging the mouse up or down. Typing in a numerical value also works.

2. Set the **Width** value to the lowest value that still keys out the majority of the blue.

   Keep an eye on the blue stripes on the middle balloon. Notice that if the range is set too high the blue stripes disappear. It's okay to have rough edges at this point.

3. Click on the **Softness** slider and drag it right or left to clean up the edges of the balloons.

   Because of the blue stripes in the balloons, it is difficult to get clean edges without removing the edges of the stripes. Try to get the edges as clean as you can.

4. Click on the **Low Sat** slider and drag it right or left to adjust the value if you are having difficulty getting soft edges.

Keying In A Framestore

You should be able to achieve a good key. The difficult part is keeping the blue stripes in the balloons. Now let's see what the balloons look like with a different background keyed in.

1. Drag and drop the Los Angeles skyline picon (Figure 4.7) in the **Bins\Stills\Manmade** bin into the **Source Monitor**.

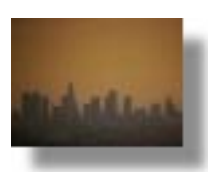


Figure 4.7: Los Angeles Skyline Picon

2. If you have disabled keying, toggle on keying again by right-clicking on the **Source Monitor** to invoke the context menu. Select **Key With Background Source** to enable keying.

You see the balloons over the Los Angeles skyline in the Program monitor (Figure 4.8).

Figure 4.8: Balloons Keyed over the Los Angeles Skyline

Manually Setting The Chroma Keyer

Because of uneven lighting or an uneven background color, there are times when the **Auto-set** feature won't be the best selection. In these situations, you need to manually set the chroma keyer.

Once you are comfortable using the keyer, the **Keyer Settings** panel can be used to pick a specific color to be keyed out. Since this is your first time, a framestore of a color wheel is used to illustrate how and which colors are manually keyed out.

1. Locate the bin labeled **VTK400\Bins\Stills\Test** (Figure 4.9).

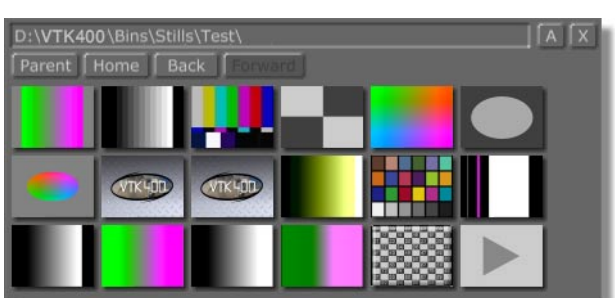


Figure 4.9: VTK400\Bins\Stills\Test

2. Double-click on the color wheel picon (Figure 4.10) to load the framestore into the **Preview** bus.

Figure 4.10: Color Wheel Picon

You see the color wheel framestore in the Preview monitor.

3. It is recommended that you use one of the grayscale picons in this bin as the background. Drag one of the picons from the bin and drop it into the Source Monitor corresponding to the color wheel framestore.

   If you have disabled keying, toggle on keying again by right-clicking on the **Source Monitor** to display the context menu. Select **Key With Background Source** to enable keying.

4. Perform a Cut or select the color wheel framestore on **Program** to start keying.

5. Click on the small color rectangle next to the **Key Off** button in the **Keyer Controls** to bring up the **Keyer Settings** panel.

6. Click the **Manual** button in the **Keyer Settings** panel to choose the manual keyer settings option.

   You see the **Manual** button turn yellow.

In the Program monitor you see the color wheel framestore with a small sliver of gray taken out (Figure 4.11). The sliver of gray is the color keyed out of the video signal.

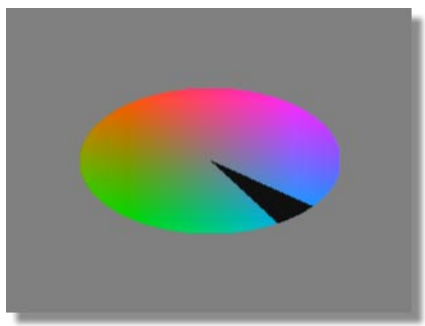


Figure 4.11: Color Wheel Framestore with a Small Sliver of Gray Taken Out

You see the Keyer picon, in the **Keyer Settings** panel, with the sliver of color missing from the color wheel (Figure 4.12). This picon always shows the color that is keyed out.

Figure 4.12: Keyer Picon with Sliver of Color Missing

Changing The Keyed Color

Changing which color is keyed out of a video source is simple. Adjusting the **Hue**, **Width**, **Softness**, and **Low Sat** sliders (Figure 4.13) in the **Keyer Settings** panel affects what colors are keyed out.

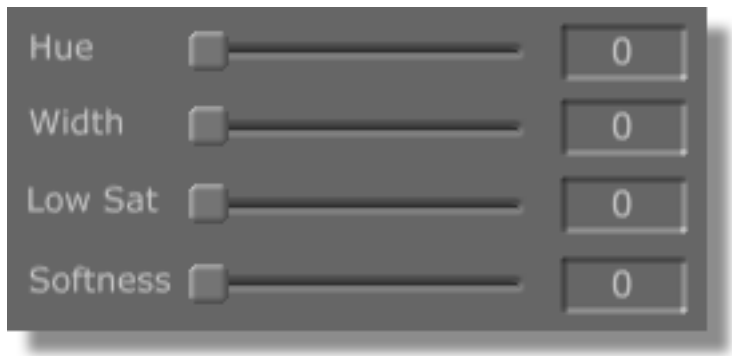


Figure 4.13: Hue, Width, Softness, and Low Sat Sliders

By playing with these values, you should be able to set a very crisp and clean key. Try not to take too many colors out, or you may find a piece of clothing being keyed out inadvertently. This happened often during weather broadcasts in the 1970s.

Following is a description of how the **Hue**, **Width**, **Softness**, and **Low Sat** sliders affect what color is keyed out. You can adjust these values by clicking and dragging their sliders right or left, by clicking on the numeric value and dragging the mouse up or down, or by typing in a numeric value:

Hue	The **Hue** value is a number from 1 to 360 that corresponds to the degree on the color wheel. A value of **1** is pretty close to chroma key blue. The value for chroma key green is around **230**. By clicking on the **Hue** slider and dragging it right or left, you see the sliver of color move around the **Keyer** picon in the **Keyer Settings** Panel.
Width	Adjusts the size of the sliver of color in the **Keyer** picon, affecting the number or range of colors keyed out. A value of **1** is a small sliver, while a value of **40** is a large sliver. By clicking on the **Width** slider and dragging it right or left, you see the size of the sliver of color grow and shrink.
Softness	Can be used to make the edges of a chroma key look soft and natural. By clicking on the **Softness** slider and dragging it right or left, you see the edges of the sliver of color in the **Keyer** picon change in degrees of softness.
Low Sat	Controls how much of the neutral colors in the center of the color wheel are eliminated. By clicking on the **Low Sat** slider and dragging it right or left, you see a circle of color in the center of the **Keyer** picon grow or shrink, changing what colors are keyed out. The higher the **Low Sat** value, the bigger the circle of color that is keyed out.

Now that you've mastered the basics of keying out colors using the **Keyer Settings** panel and its functions, try experimenting with your own video sources.

Setting Up And Performing Live Switching

This tutorial covers some of the basics of setting up and performing live switching. The basics include:

- Setting up a custom layout
- Selecting inputs
- Loading and using framestores, downstream keys, and effects
- Freezing and strobing live video
- Using the audio panel

Setting Up A Custom Layout

Everything needed to switch a production studio can be found on your VTK Live interface. The bottom half of the screen is dedicated to the most commonly used switcher elements (input bus, T-Bar, and Effect Controls), but the top half of the screen is configurable to meet the your needs.

At any given time, you can have any of the following features available to you on your interface: bins (which contain FX, DSK, framestore and other important files), a VTR transport panel, an audio mixer panel, and for those systems fitted with the optional ClipGrab card, a monitor panel (which displays both Program and Preview screens) as well as a waveform

vectorscope. The bin layout can be configured to accommodate your needs.

Figure 4.14: VTK Live Layout in VTK400 Live

The following steps describe how to modify and store your own personalized VTK Live bin layout.

1. Click-and-drag the bottom edge of one of your bins so that it is only half as tall as the default window.

This leaves a blank gray space just below your newly-sized bin (Figure 4.15).

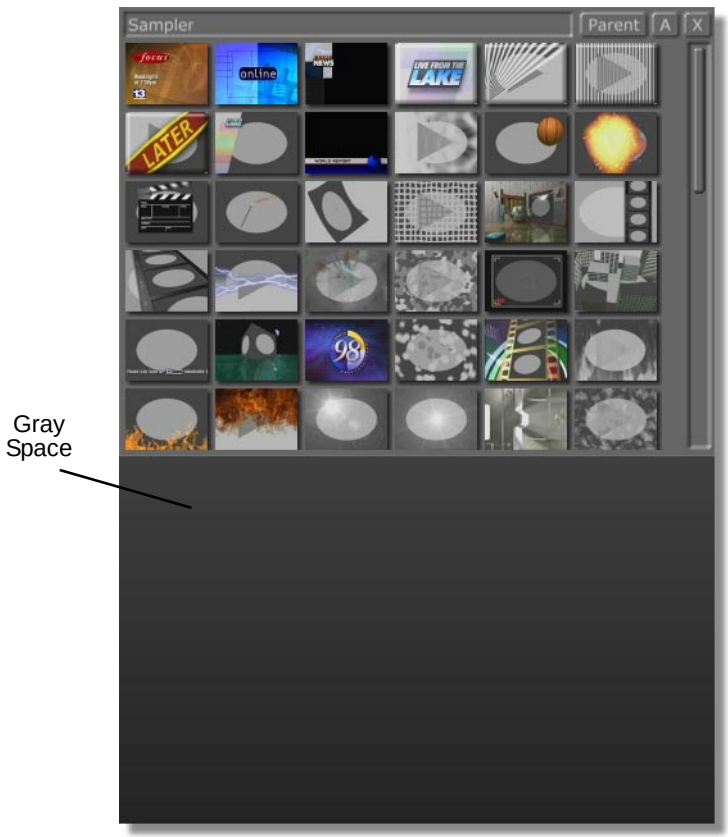


Figure 4.15: Gray Space Below Bin

2. Right-click on this empty gray space and select the **New Bin Window** option (Figure 4.16).

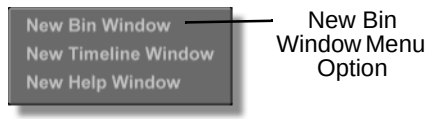


Figure 4.16: Choosing a New Bin Window

This opens a new bin window which displays the contents of your **VTK400/Bins** folder.

3. Navigate through the bin (by double-clicking on the folders and using the **Parent** button to go back to a previous folder, if necessary) until you have a folder displayed in the bin that you would like to see displayed in your VTK Live interface.

4. Repeat this process as needed until your desktop is set up in a layout that is comfortable for you.

5. Once you have your desktop set up, right-click in any bin slot, but not directly on one of the files, and select the **Save Layout** option.

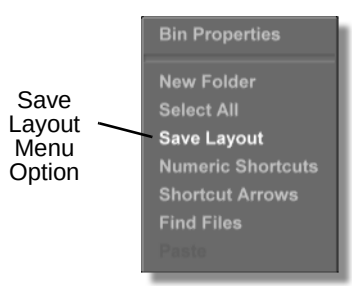


Figure 4.17: Save Layout Option

This saves a layout picon in that bin that can be used at a later date to reload this layout, should you need to change it around.You can save

multiple layouts for each application. Layouts can be loaded by double-clicking on the saved layout picon.

Figure 4.18: Saved Layout Picon

Selecting Inputs

All of your inputs can be selected directly from the busses located in the lower left side of the interface. These busses are **Program**, **Preview**, **Key**, and **Aux**. **Key** and **Aux** are used only in specific circumstances. For now, only the **Program** and **Preview** buses will be covered.

In order to select any of your inputs, click on the numbered button that is associated with your input (click on the 1 button to switch to input 1). In most live situations, you will want to follow the procedure outlined here:

1. Select your beginning shot (live video, graphic, color bars, still, etc.) either by loading from a bin and selecting **FS1** (or **FS2**) or by clicking on the appropriate input on the Program Bus.

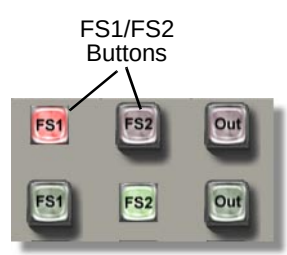


Figure 4.19: FS1 and FS2 Buttons

2. Select your next input from the Preview Bus; this should be displayed on your Preview monitor.

Figure 4.20: Preview Bus In VTK400 Live

3. To cut from Program to Preview, simply press **Enter**, or click on the **Cut** button to the right of the busses.
4. To dissolve from Program to Preview, make sure that **Mix** is highlighted and then press the space bar or click on the **Auto** button to the right of the **Cut** button.

Figure 4.21: Mix and Auto Buttons

5. Once you have switched your Preview input to your Program input, be sure to select your next input from the Preview bus, and get ready for your next transition.
6. Repeat this process whenever you want to select an input.

Using Framestores, DSKs, And Effects

In many situations, you will not want to simply cut and dissolve between two sources. The VTK400 system is capable of processing some very complex effects, downstream keys, transitions, etc. In order to load any of these from a bin, double-click on the appropriate picon. The selected picon loads into the interface and is ready to use in your live switching.

To load and use a picon, follow these steps.

1. Find the **VTK400\FX\Sampler** bin.
2. Find the basketball transition picon in the **VTK400\FX\Sampler** bin (Figure 4.22).

Figure 4.22: Basketball Transition Picon

3. Double-click on the picon.

   You see a thin green line scanning over the FX picon (just to the right of the T-Bar). When the transition is finished loading, you see the picon of the transition in the FX picon window (Figure 4.23).

Figure 4.23: Basketball Picon in FX Window

4. After the transition loads, the **Mix** button turns off and the **FX** button turns on.
5. Press the space bar or the **Auto** button to run the transition.

6. Now find the Flame DSK in the **FX/Sampler** bin (it should look like a band of fire on the bottom, with a white oval sitting just above it).

Figure 4.24: Flame DSK Picon

7. This loads into the **DSK** picon window, just as the previous transition loaded into the **FX** picon window.

Figure 4.25: Flame DSK in DSK Window

8. As it loads, the **FX** button turns off and the **DSK** button turns on.
9. Run the transition (using **Auto** or the space bar).

Now you have two different effects loaded into the memory. You can switch between them by changing between **Mix** (for dissolve), **FX** (for transition), or **DSK** (for fire effect).

In some cases, you can modify the speed of the current effect by changing the number above the **Auto** button (this represents the length of the effect

in frames). You can select the field and type in a new value, or click and drag up or down to modify the value.

Figure 4.26: Length of Effects in Frames

In some cases, you will also want to load a still into your live video. To do this, simply double-click on a framestore picon in one of your bins, and it loads automatically into your Preview bus. You can now use **FS1** and **FS2** as inputs for live switching.

Using The Audio Mixer

VTK Live also integrates with an optional audio mixer module. The **Audio Mixer** panel allows you to access all eight of these live audio inputs at any point in your broadcast. While the mixer panel simply emulates the functions of a traditional audio mixer, you are able to set a default configuration, to which you can return with the click of a button. To do so, do the following:

1. Click on the **Panels** button in the lower right of the screen. You should now see your mixer panel on the upper left of your display.

Figure 4.27: Audio Mixer Panel

2. Set the mixer settings to the appropriate levels for your studio.
3. Click on **Set Default**. This saves the settings you have made as the default mixer settings for VTK Live.
4. To use these settings at any time, click on the **Use Default** button.

For a complete description of the audio mixer, see “Audio Mixer” on page 67.

VTK LIVE APPENDICES

Appendix I

Keyboard Commands

Keyboard commands are a cool way to navigate through applications, and perform functions with swiftness. In this appendix, you find keyboard commands for your VTK Live:

F1	Input 1 on Program Bus.
F2	Input 2 on Program Bus.
F3	Input 3 on Program Bus.
F4	Input 4 on Program Bus.
F9	First Softbutton on Program Bus.
F10	Second Softbutton on Program Bus.
F11	Third Softbutton on Program Bus.
F12	Fourth Softbutton on Program Bus.
1	Input 1 on Preview Bus.
2	Input 2 on Preview Bus.
3	Input 3 on Preview Bus.
4	Input 4 on Preview Bus.
9	First Softbutton on Preview Bus.
0	Second Softbutton on Preview Bus.
- (minus)	Third Softbutton on Preview Bus.
=	Fourth Softbutton on Preview Bus.
Insert	Mix.
Home	FX.

Page Up	DSK.
Delete	Lock.
Page Down	Fade to Blk.
, (comma)	Effect Duration = ¼ sec.
. (period)	Effect Duration = ½ sec.
/	Effect Duration = 1 sec.
****	**Cue** button
Space Bar	Auto.
Return/ Enter	Cut.
Esc	End current effect.
Up Arrow	T-bar up one step.
Down Arrow	T-bar down one step.
f	Freeze.
b	Auto
Scroll Lock	Go to VTK Edit.
Ctrl+Back Space	Snaps a still of the program source. This still is saved in your configurable snap directory.
Ctrl+D	Toggles the TMClip Playback\DDR Panel.

Appendix II

Troubleshooting Guide

One of the most important questions to ask yourself when troubleshooting is what has changed since the system last worked correctly? This question applies to both hardware and software. Sometimes it's the smallest change to the system that causes everything to stop operating properly. When troubleshooting, remember that the VTK400 software relies on a correctly functioning PC. If the PC is not working correctly or does not meet the minimum requirements for a VTK400 system, then it could affect the VTK400 software or VideoNet drivers and cause unpredictable results.

This section is a troubleshooting guide to problems and possible solutions for VTK Live.

This chapter contains the following:

- Troubleshooting VTK Live 134
- Frequently Asked Questions 135

Troubleshooting VTK Live

I have a ClipGrab card but I don't see monitors on the VGA screen.

Click on the **Panels** button and turn on the check mark next to monitors.

When I freeze video, my framestore is jittering.

Go into **Framestore Settings** and select interpolate **field 1** or **field 2**. This will eliminate any jittering from fast motion video.

Frequently Asked Questions

Can you modify or adjust the VTK Live effects?

Yes. Each effect has its own property effects window. By simply right-clicking the mouse on the effect, an **effect properties** window opens. Effect attributes which can be changed include: border, duration, fade in and out, gradient, direction, etc. Not all attributes are adjustable for every effect. The buttons will appear gray for attributes with fixed values.

Can you label individual video inputs (Cam1, VCR1, etc.) on the VTK Live busses for easy identification?

Yes. GlobalStreams has included “virtual masking tape” on the VTK Live interface so you can type in a name for each input.

Does VTK400 perform strobing effects?

Yes. Strobing is turned on and controlled from the VTK Live interface. Strobing intervals are set with the keyboard or mouse by number of fields to hold between 1 and 999.

On the optional audio sub-system, are balanced (XLR) and unbalanced (RCA) connectors available?

Yes. Two types of 16-bit automated digital audio mixers are available, both with eight inputs and stereo output. They are identical except for their input and output connectors.

What can the optional audio mixers do?

The optional VTK400 audio mixer provides eight inputs and stereo output with a 3 band parametric equalizer, stereo panning, level indicators, plus trim, solo and mute controls, plus effects send outputs with return inputs, program and monitor outputs. When working with VTK Edit, audio levels can be automated and animated for split edits, cross-fades, dips, etc.

Can VTK400 perform a dissolve while simultaneously overlaying a downstream key in real-time?

Yes. The base VTK400 system has the hardware power to perform several functions at once, independently and in real-time.

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Application Notes